NOAA AND EPA RESPONSE TO COMMENTS REGARDING THE AGENCIES' PROPOSED FINDING THAT OREGON HAS NOT SUBMITTED A FULLY APPROVABLE COASTAL NONPOINT PROGRAM

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I. BACKGROUND

On December 20, 2013, the National Oceanic and Atmospheric Administration (NOAA) and the Environmental Protection Agency (EPA) announced a 90-day public comment period in the Federal Register, with regard to the agencies' intent to find that Oregon has not submitted an approvable coastal nonpoint pollution control program (coastal nonpoint program) pursuant to Section 6217 of the Coastal Zone Act Reauthorization Amendments. The proposed findings document explained the federal agencies' rationale for this proposed decision.[1]

Section 6217(a) of the Coastal Zone Act Reauthorization Amendments (CZARA), 16 U.S.C. section 1455b(a), requires that each state (or territory) with a coastal zone management program previously approved under section 306 of the Coastal Zone Management Act must prepare and submit to the federal agencies a coastal nonpoint pollution control program for approval by NOAA and EPA. For states with coastal zone management programs that were approved by NOAA prior to 1991, coastal nonpoint programs were to be submitted for approval by July 1995. Oregon submitted its coastal nonpoint program to the federal agencies for approval at that time. The federal agencies provided public notice of and invited public comment on their proposal to approve, with conditions, Oregon's coastal nonpoint program (62 FR 6216). The federal agencies approved the program by letter dated January 13, 1998, subject to the conditions specified in the letter (63 FR 11655).

Over time, Oregon made incremental changes to its program in order to address the identified conditions. However, in the December 20, 2013, proposed findings document, NOAA and EPA determined that Oregon has not addressed all conditions placed on its program. Therefore the federal agencies proposed to find that the state has not submitted a fully approvable coastal nonpoint program.

NOAA and EPA's proposed findings focused on three conditions placed on Oregon's program—new development, onsite sewage disposal systems (OSDS), and additional management measures for forestry. In addition to seeking public comment on these proposed findings, the federal agencies also sought public comment on the adequacy of the State's programs and policies for meeting the 6217(g) agriculture management measures and conditions. The specific agriculture questions NOAA and EPA asked the public to respond to were: (1) Has the State satisfied the agriculture conditions placed on its coastal nonpoint program?; and (2) Does the State have programs and policies in place that provide for the implementation of the 6217(g) agriculture management measures to achieve and maintain water quality standards and protect designated uses?

NOAA and EPA received 85 comments during the 90-day public comment period.[2] Nearly all comments were unique; only three comments were identical. Many comment letters supported NOAA and EPA's proposed finding while others opposed the proposed finding. Of the comment letters that opposed the proposed finding, some did so because they believe Oregon has either fully met its CZARA obligations or needed more time. Other comment letters opposed the finding on the grounds that NOAA and EPA should not withhold federal funding, which would be the statutory consequence of finding that the state has not submitted a fully approvable coastal nonpoint program; these comments largely took the

[1] See http://coastalmanagement.noaa.gov/nonpoint/oregonDocket/OR%20CZARA%20Decision%20Doc%2012-20-13.pdf for NOAA and EPA's proposed finding on Oregon's Coastal Nonpoint Program.

[2] See http://coastalmanagement.noaa.gov/nonpoint/oregonDocket/publicComments.html to view all comments received and who provided comments.

position that the State needs to do more to protect water quality. The remaining comment letters did not offer a specific view on the proposed finding, but instead commented on specific aspects of coastal nonpoint source pollution management in Oregon. Most of those comment letters implied that the State needs to do more to protect coastal water quality.

After considering comments received, including comments and an updated coastal nonpoint program submittal from the state, NOAA and EPA find that Oregon has failed to submit an approvable coastal nonpoint program under Section 6217 of the Coastal Zone Act Reauthorization Amendments.[3]

This document provides a summary of the public comments received and NOAA and EPA's response to those comments.

II. GENERAL COMMENTS

A. Proposed Finding

Comment: Many commenter letters supported NOAA and EPA's proposed finding that Oregon has failed to submit a fully approvable coastal nonpoint program under Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA). One theme within these general comments is that Oregon has not adopted additional management measures for forestry where water quality impairments and degradation of beneficial uses attributable to forestry exist despite implementation of the CZARA management measures developed under Section 6217(g). A number of commenter letters also noted that the state failed to follow through on its 2010 commitments to NOAA and EPA to address three remaining conditions on its program related to new development, septic systems, and forestry by March 2013.[4]

While some commenters agreed that Oregon needs to do more to improve water quality, they did not agree with NOAA and EPA's proposed finding because they opposed withholding federal funding under CZMA Section 306 and CWA Section 319 (see Funding Section below for more discussion on this issue).

Other commenters opposed NOAA and EPA's proposed finding. They stated Oregon does have adequate programs in place to meet the CZARA requirements. More specific comments are discussed in sections below.

Response: NOAA and EPA appreciate the many comments received in response to the federal agencies proposed finding that Oregon has not submitted an approvable program under Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA). After carefully considering all comments received and the state's March 20, 2014, response to the proposed finding, NOAA and EPA find that Oregon has not submitted an approvable program. Although Oregon has made progress in addressing many of the original conditions placed on the State's program, the State has not adopted additional management measures for forestry that are necessary to achieve and maintain water quality standards and to protect designated uses. The basis for this finding is explained more fully in the decision document. Under CZARA, this decision calls on NOAA and EPA to withhold a portion of the funds the

[3] See January 30, 2015 decision document on Oregon's Coastal Nonpoint Program at http://coast.noaa.gov/czm/pollutioncontrol/#Oregon.
[4] The state made their commitments in a July 21, 2010, letter from Neil Mullane, Department of Environmental Quality, and Robert Bailey, Department of Land Conservation and Development, to Mike Bussell, Environmental Protection Agency Regional 10, and John King, National Oceanic and Atmospheric Administration.

state receives under Section 306 of the Coastal Zone Management Act and Section 319 of the Clean Water Act, respectively.

B. State Legislature Has Been Obstructing ODEQ's Ability to Make Changes

Comment: One comment letter stated that the Oregon Department of Environmental Quality (DEQ) has been working hard to get the improvements needed to improve water quality and meet all coastal nonpoint program requirements. The comment believed the State Legislature had been obstructing DEQ's progress and is the one that needs to take action.

Response: The federal agencies do not attempt to address or consider the role of the State legislature in making a finding on Oregon's program. NOAA and EPA have been working closely with DEQ, the Department of Land Conservation and Development (DLCD), and other agencies to complete the development of the State's coastal nonpoint program. We commend the agencies for the progress they have made to strengthen Oregon's coastal nonpoint program and address many of the remaining conditions. Ultimately, CZARA refers to actions by a "state" collectively and does not distinguish between or among various branches within or departments of state government.

C. Federal and State Governments Have Responsibility to Manage Waters

Comment: One comment letter stated that the federal and state governments have a responsibility to manage waters in the public trust for maximum long-term benefit for current and future generations. They noted this was not being done. The comment did not provide any additional information explaining the basis for this.

Response: Federal and state governments do have a responsibility to manage public waters for current and future generations. Congress created CZARA as a tool for NOAA and EPA, along with our state partners, to use to help protect coastal waters. NOAA and EPA strive to carry out these responsibilities within the constructs of federal statute and associated guidance.

III. FUNDING

A. Impacts of Withholding Funds

Comment: Some comment letters noted that withholding funds under Section 306 of the Coastal Zone Management Act (CZMA) and Section 319 of the Clean Water Act (CWA) could negatively impact Oregon's ability to improve water quality and support beneficial programs such as Total Maximum Daily Loads (TMDLs), Oregon Watershed Enhancement Board (OWEB) watershed planning and restoration projects, local land use planning, as well as the state's ability to provide technical assistance to coastal communities to address pressing coastal management issues such as coastal hazards, stormwater management, and growth management. A few comment letters argued against NOAA and EPA withholding funds from these programs because they felt withholding funding from two important programs that address polluted runoff and coastal habitat issues in the state is counterproductive to accomplishing the goals of these programs and unlikely to result in the policy and programmatic changes NOAA and EPA are seeking. Others noted that withholding funding would hurt two state programs and agencies, Oregon's Coastal Management Program in the Department of Land and Conservation and Development and Oregon's Nonpoint Source Management Program in the Department of Environmental Quality, that lack control over some of the most significant remaining issues (i.e., forestry and agriculture). Some commenters also noted that withholding funds would

negatively impact coastal communities and watershed groups that also rely on this funding from NOAA and EPA.

Other commenters supported withholding funds even though they acknowledged it may have some negative impacts initially. They saw withholding funding as the only way to get further action in the state to improve water quality and protect designated uses. One comment letter also noted that NOAA and EPA's failure to withhold funding sooner allowed Oregon to "limp along for over 16 years with inadequate management measures for its coastal nonpoint program while drinking water and other water quality impairments occurred."

Response: The statute provides for NOAA and EPA to withhold funding when the agencies find that a state has not submitted an approvable coastal nonpoint program (as is the case with Oregon). NOAA and EPA recognize that withholding funding under Section 306 of the CZMA and Section 319 of the CWA could make it more difficult for Oregon to maintain the same level of effort on key programs that help improve water quality and protect salmon habitat, such as the state's coastal management, TMDL, and nonpoint source programs. However, the withholding provision in CZARA encourages states to develop fully approvable coastal nonpoint programs in order to maintain full federal funding. NOAA and EPA will continue to work with Oregon to complete the development of its coastal nonpoint program so that the impact from the funding reduction is lessened.

B. Oregon Stands to Lose $4 million per Year in Federal Funding

Comment: Several commenters stated that if NOAA and EPA's proposed finding that Oregon has not submitted a fully approvable coastal nonpoint program stands, Oregon would lose $4 million a year in federal funding.

Response: The comment appears to over-estimate the amount of federal funding subject to withholding. After a state does not submit a fully approvable program, CZARA directs NOAA and EPA to withhold 30 percent of a state's allocations under Section 306 of the CZMA and Section 319 of the Clean Water Act, respectively. NOAA and EPA may begin withholding funding from Oregon with the start of the State's FY15 funding on July 1, 2015. NOAA and EPA will evaluate the State's progress in addressing its remaining program gaps when deciding when funding would be withheld. Depending on final appropriations, Oregon's total allocation under these two programs for FY15 will likely be around $4M in federal funding. Therefore, the State could lose a total of approximately $1.2M in federal funding (roughly $600K from each program). When Oregon achieves an approvable program, NOAA and EPA would restore full program funding under Section 306 of the CZMA and Section 319 of the Clean Water Act.

III. AUTHORITIES UNDER THE COASTAL ZONE ACT REAUTHORIAZATION AMENDMENTS (CZARA)

A. Suitability of Voluntary Approaches Backed By Enforceable Authorities

Comment: Several comment letters noted that CZARA requires coastal states to have enforceable mechanisms for each management measure. These letters registered dissatisfaction with the voluntary approaches Oregon uses to address many CZARA management measure requirements. These letters noted that Oregon's voluntary approaches are not being adhered to and that the state is not using its

back-up authority to enforce and ensure implementation of the CZARA management measures, when needed. A few comment letters also noted that Oregon has not described the link between the enforcement agency and implementing agency and the process the agencies will use to take enforcement action when voluntary approaches are not adequate to protect water quality. Another comment letter stated that voluntary approaches will not work and that the state needs to adopt approaches that could be enforced directly.

Response: States must have enforceable policies and mechanisms to implement the CZARA management measures (see Section 306(d)(16) of the Coastal Zone Management Act). As the NOAA and EPA January 1993 *Coastal Nonpoint Pollution Control Program Development and Approval Guidance* states, the federal agencies have interpreted the statutory provisions to mean that "these enforceable policies and mechanisms may be state or local regulatory controls, and/or non-regulatory incentive programs combined with state enforcement authority." Therefore, voluntary, incentive-based programs are acceptable approaches for meeting the CZARA management measure requirements as long as a state can demonstrate it has adequate back-up authority to ensure implementation of the CZARA management measures, when necessary.

For coastal nonpoint program approval, CZARA requires NOAA and EPA to assess whether or not a coastal state with an approved coastal management program "provides for the implementation" of 6217(g) management measures (Section 6217(b)). To do this, NOAA and EPA examine whether the state has processes in place that are backed by enforceable policies and mechanisms to implement the 6217(g) management measures. In approving a state's coastal nonpoint program, NOAA and EPA do not consider how well those processes, including voluntary ones, have worked or been enforced; rather, the federal agencies have accepted voluntary approaches when the state provides the following:

1. a legal opinion from the attorney general or an attorney representing the agency with jurisdiction for enforcement that such authorities can be used to prevent nonpoint pollution and require management measure implementation, as necessary;
2. a description of the voluntary or incentive-based programs, including the methods for tracking and evaluating those programs, the states will use to encourage implementation of the management measures; and
3. a description of the mechanism or process that links the implementing agency with the enforcement agency and a commitment to use the existing enforcement authorities where necessary.

(See *Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance for Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990* and *Enforceable Policies and Mechanisms for State Coastal Nonpoint Programs*.)[5] The latter two provisions in the third item ensure, that such programs, even though implemented through voluntary mechanisms, are, at the their core, "enforceable policies and mechanisms" as provided in the statute.

Program implementation occurs after coastal nonpoint program approval and the opportunity for evaluation of the effectiveness of implementation is available under other statutory mechanisms. Section 6217(c)(2) of CZARA directs participating states to implement their approved programs through changes to their nonpoint source management plan, approved under Section 319 of the Clean Water

[5] Both guidance documents are available at http://coast.noaa.gov/czm/pollutioncontrol/.

Act, and through changes to its coastal zone management program, developed under Section 306 of the Coastal Zone Management Act.

Regardless, for the new development and onsite sewage disposal system management measures, the federal agencies believe the State has sufficiently demonstrated the link between implementing and enforcing agencies, as well as a commitment to use that authority. With regard to the additional management measures for forestry, NOAA and EPA agree with the assertion that the State has not met all the criteria enabling it to rely on voluntary programs backed by enforceable authorities to demonstrate its "enforceable policies and mechanisms." The findings document on Oregon's Coastal Nonpoint Program explains why NOAA and EPA have made this finding.

B. Federal Government Taking Over Oregon's Coastal Nonpoint Program

Comment: One comment letter noted that NOAA and EPA have an obligation to step in for Oregon and take over its coastal nonpoint pollution control program since the state lacks the will to address its polluted runoff issues.

Response: Unlike some of the EPA water quality programs under the Clean Water Act, such as the National Pollutant Discharge Elimination System (NPDES) Program, CZARA provides for exclusive state and local decision-making regarding the specific land-use practices that will be used to meet the coastal nonpoint program management measures. The Act does not provide NOAA or EPA with the authority to take over, or implement, a state's coastal nonpoint program if the state declines to do so.

C. Oregon Needs More Time to Develop Its Coastal Nonpoint Program

Comment: A few comment letters stated that NOAA and EPA should give Oregon additional time to develop a fully approvable coastal nonpoint program. They noted that developing a program and addressing the remaining conditions NOAA and EPA placed on the state's program is very challenging and that the state has made significant progress since gaining conditional approval. They also noted that the state is continuing to make additional improvements, such as the current rulemaking process by the Oregon Board of Forestry to achieve better riparian protection for fish-bearing streams, but that the state needs more time before the new rule is adopted.

A few other comment letters noted that Oregon has had plenty of time to address deficiencies since receiving conditional approval for its coastal nonpoint program in 1998.

Response: Oregon has been working on its program conditions since 1998. NOAA and EPA disagree with the comments which suggest that Oregon be provided with additional time to develop additional management measures as necessary to achieve and maintain water quality standards and to protect designated uses. As early as September 2010, the federal agencies notified the state that a final decision was anticipated on or about May 15, 2014, (which was later extended until January 20, 2015) and has been recommending to the State what it could do to address its conditions since they were first placed on Oregon's program in 1998.

D. CZARA Requires State to Address Issues Outside of Its Control

Comment: One comment letter disagreed with the Coastal Nonpoint Program regarding its requirement that states have to meet all CZARA management measures. They noted that some measures, such as onsite sewage disposal systems (OSDS), are often addressed at the local level, and are therefore, outside of the state's jurisdiction.

Response: The CZARA amendments requires all coastal states participating in the National Coastal Zone Management Program to develop coastal nonpoint programs that "provide for the implementation, at a minimum, of management measures in conformity with the guidance published under subsection (g), to protect coastal waters…" (See Section 6217(b), 16 U.S.C. 1455b(b))). The 1993 guidance EPA developed to comply with subsection (g), *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*, outlines two management measures related to new and existing OSDS that states must address.

With regard to the two OSDS management measures, all coastal states have exercised statewide authority to regulate many aspects of OSDS, such as siting requirements and what qualifications are needed to inspect OSDS. NOAA and EPA acknowledge that many states have been reluctant to require inspections of OSDS at the state level, but that reluctance should not be confused with an inherent limitation of state powers. From a practical standpoint, NOAA and EPA recognize that local governments often play a significant role in managing OSDS, and the federal agencies have therefore accepted a variety of approaches for meeting the OSDS management measures, as well as other measures, including those that have relied on a mixture of state and local-level authorities, local efforts with sufficient geographic coverage, or state-led voluntary approaches backed by enforceable authorities.

E. NOAA and EPA Holding Oregon to a Higher Standard

Comment: One comment letter stated that NOAA and EPA are holding Oregon to a higher standard than other states. The letter noted that raising the approval threshold for Oregon compared to other states was unfair to Oregon and that NOAA and EPA should help Oregon meet the previously established minimum standards for other state coastal nonpoint programs rather than require Oregon to meet a higher bar.

Response: NOAA and EPA have not been provided any information to suggest that Oregon is being held to a higher standard that other states. The CZARA statutory requirements and guidance that the federal agencies use to evaluate Oregon's program are the same as those that have been applied to evaluate the approvability of every other state's program. The federal agencies have implemented processes to ensure all state programs are evaluated consistently. NOAA and EPA required California, Oregon and Washington to develop additional management measures for forestry that went beyond the basic CZARA 6217(g) forestry management measures. The additional management measures were identified as conditions on approval based on the need to achieve and maintain water quality standards and protect designated uses, for salmonids; and the significance of timber harvesting impacts across these states. Oregon, Washington, and California continued to experience adverse impacts to salmon and salmon habitat due to forestry activities despite having programs in place to satisfy the standard suite of 6217(g) forestry management measures. As a result, additional management measures for forestry were needed.

F. Need to Take a Tailored Approach to Nonpoint Source Control

Comment: A few comment letters were concerned that NOAA and EPA are applying a "one-size-fits all" approach to addressing nonpoint source pollution in Oregon by requiring the State to meet specific national management measures. The commenters felt that a more tailored approach that considers the various sources of nonpoint source pollutants in Oregon and the need to address each one individually would be more appropriate.

Response: By its nature, CZARA affords states significant flexibility to develop programs that are consistent with the broad national 6217(g) management measure requirements, yet are tailored to meet a state's specific circumstances. Section 6217 does not provide NOAA or EPA with authority to require states or local governments to take specific actions to address coastal nonpoint source pollution and in specifying conditions on approval that additional management measures were necessary to meet water quality standards and uses, NAOA and EPA did not do so. Rather, NOAA and EPA assist each participating coastal state to find the best approach for each state that is consistent with the overarching CZARA requirements.

As required by section 6217 (g), in 1993, EPA published guidance for coastal nonpoint pollution control, *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters*. The guidance specifies 56 management measures that form the core requirements of a state's coastal nonpoint program. While the guidance establishes baseline standards for addressing broad categories and sources of nonpoint source pollutants, there are many different approaches that states can take to be consistent with the 6217(g) management measure requirements. For each management measure, the guidance provides examples of a variety of different things states can do to satisfy the requirements of the management measure. To date, 22 state coastal nonpoint pollution control programs have received full approval under CZARA. The publicly available approval documents on NOAA's coastal nonpoint program website demonstrate a variety of state-specific approaches.

While NOAA and EPA have provided Oregon with various recommended suggestions to address the management measures and to control coastal nonpoint pollution, decisions about which approaches to develop, adopt, and implement to address the management measures rest with the state.

G. Coastal Nonpoint Program Needs to Address Climate Change

Comment: One comment letter noted that Oregon's Coastal Nonpoint Program needs to address climate change. The letter noted that water shortages and toxins will become even more pressing issues as the climate continues to change.

Response: Climate change is an important issue facing coastal states and may contribute to adverse impacts to coastal water quality. NOAA and EPA take climate change very seriously and are involved in a number of initiatives to help states and other entities become more resilient to the impacts of climate change. For example, through the National Coastal Zone Management Program, NOAA has been providing financial and technical assistance to Oregon to encourage local governments to incorporate climate change and hazards considerations into their local comprehensive plans. Specifically, NOAA and Oregon have been working with local governments to plan for and reduce exposure to climate-related natural hazards in Oregon's coastal zone. Similarly, EPA's State and Local Climate and Energy Program provides technical assistance, analytical tools, and outreach support on climate change issues to state, local, and tribal governments. Additionally, EPA's Climate Ready Estuaries and Climate Ready Water Utilities programs help coastal resource managers and water utility managers, respectively, plan and prepare for climate change.

Neither the CZARA amendments nor the 1993 guidance under section 6217(g) specifically identify management measures to address climate change through state coastal nonpoint programs. When approving state coastal nonpoint programs, NOAA and EPA ensure that each state program provides for the implementation of the management measures in conformity with the 1993 *Guidance Specifying Management Measures for Sources of Nonpoint Source Pollution in Coastal Waters,* developed pursuant

to Section 6217(g). Section 6217(b)(3) provides for additional management measures that are necessary to achieve and maintain water quality standards under the Clean Water Act and to protect designated uses. The 1993 guidance mentions climate change in the discussion of several suggested best management practices that a state could employ to implement a particular management measure. The discussion for the new onsite sewage disposal system management measure, for example, notes that the rate of sea level rise should be considered when siting onsite sewage disposal systems and the discussion for the stream bank and shoreline erosion management measure notes that setback regulations should recognize that special features of the stream bank or shoreline, may change, providing an example of beaches and wetlands that are expected to migrate landward due to rising water levels as a result of global warming. However, none of these are required elements for a state's coastal nonpoint program. While CZARA does not have specific climate change-focused management measures, adopting and implementing programs to address the 6217(g) management measures will help coastal waters, in general, by reducing stressors and pollutant loads, which may ultimately help coastal water be more resilient to climate change impacts.

H. Proposed Finding Exceeds NOAA and EPA's Authority

Comment: One comment letter noted that the federal government places too many regulations on the states, private property owners, and individuals and that NOAA and EPA exceeded the limits defined by the U.S. Constitution. The letter suggested that Congress should remove the budgets for NOAA and EPA and return those funds back to the state.

Response: Congress created the Coastal Nonpoint Program under Section 6217 of the Coastal Zone Act Reauthorization Amendments (CZARA) of 1990. In doing so, Congress charged NOAA and EPA to jointly administer the program. In finding that Oregon has failed to submit an approvable coastal program, NOAA and EPA are carrying out their administrative responsibilities under CZARA.

I. The Public Comment Period Is Not Needed

Comment: One comment letter questioned why NOAA and EPA requested public comment on their proposed finding. They noted public comment was not needed as long as the federal agencies' finding and analysis is based on established criteria and valid science (and they believed to be the case).

Response: Public participation has served as an essential part of the federal agencies' decision making processes for administration of their responsibilities related to the coastal nonpoint program. Consistent with the public participation policies in the Coastal Zone Management Act and the Clean Water Act, NOAA and EPA have historically considered public input when making findings about a state's coastal nonpoint program.

IV. GENERAL—WATER QUALITY, MONITORING, AND ENFORCEMENT

A. Status of Oregon Coastal Water Quality Should Inform NOAA and EPA Decision

Comment: Many comment letters expressed the need for Oregon to do more to improve coastal water quality and protect designated uses. They believe the fact that many coastal water quality problems in the State still exist demonstrates that Oregon's existing programs to control coastal nonpoint source pollution are inadequate and that the State needs to do more to strengthen its coastal nonpoint program. Specific concerns cited include failure to meet water quality standards, specifically for

temperature, sediment, and/or toxics, impaired drinking water; and recent federal listings under the Endangered Species Act for salmon, salmon habitat, amphibians, and wildlife. For example, several comment letters cited the recent federal listings of Southern Oregon-Northern California Coast coho salmon as illustrative of how salmon populations and habitat have continued to decline, due, in part, to human-related water quality and habitat impairments. Comments assert that timber harvesting, agriculture, and urban development contribute to these impairments. Commenters also asserted that Oregon fails to identify land uses causing water quality impairments or threatening water quality because the State ignores technical information available about land uses that consistently cause or contribute to violations of water quality standards in coastal watersheds.

Another comment letter asserted that impaired waterbody listings under Clean Water Act Section 303(d) do not mean additional management measures are needed. They specifically noted that Northern California and Ohio list waters for sedimentation and both have approved coastal nonpoint programs.

Several other comment letters noted that recent improvements in Oregon's coastal water quality and salmon runs demonstrate that the State's coastal nonpoint pollution control program is effective. One letter stated that Oregon streams are among the cleanest in the country and provide good water for aquaculture. A few other comment letters noted the good work and water quality and habitat improvements being accomplished by watershed groups, the Oregon Watershed Enhancement Board (OWEB), and Soil and Water Conservation Districts (SWCDs). They also noted the voluntary efforts undertaken by the timber industry and farmers (cattlemen). For example, one letter described how federal, state, county, and private citizen groups have effectively worked together to improve the Tillamook watershed. They cited an Oregon Department of Fish and Wildlife study that shows many out-migrating and returning salmon to Tillamook State forest land demonstrate the results of this restoration work. Another comment letter stated there was too much focus on the need to see water quality improvements, and that given the increase in human population and other development pressures in recent decades, even maintaining water quality levels should be considered a success.

Response: NOAA and EPA recognize that voluntary programs, such as those implemented by OWEB and SWCDs, play an important role in nonpoint source management and water quality improvements in coastal Oregon. Oregon has experienced some noteworthy successes, such as returning salmon populations to the Tillamook watershed. However as the State's Clean Water Act section 303(d) list of waters not meeting water quality standards reflects, Oregon still grapples with impaired waterbodies that do not achieve water quality standards or support designated uses, such as domestic water supply (drinking water) and fish and aquatic life (e.g., salmon). As stated in the CZARA amendments, the purpose of a state coastal nonpoint program should be to "develop and implement management measures for nonpoint source pollution to restore and protect coastal waters."

However, CZARA does not require that all state waters throughout their coastal nonpoint program management areas meet water quality standards before receiving full approval from NOAA and EPA for their coastal nonpoint programs. Rather, CZARA anticipates adaptive management. States must have processes in place to implement the 6217(g) management measures as well as to identify and implement additional management measures, when needed, to achieve water quality standards and to protect designated uses (see Section 6217(b)). The federal agencies do not anticipate that even the most rigorous implementation of additional management measures will result in immediate attainment of water quality standards in waters and areas adversely affected by land uses over an extended period of

time. However, the federal agencies expect that a state whose additional management measures are approved have regulatory programs or voluntary programs with monitoring, tracking and enforceable mechanisms in place that will take steps to protect coastal areas in the longer term.

Regarding the comment that stated that Ohio had a fully approved coastal nonpoint program, that is incorrect. Ohio's program still has conditions on it that the state is working to address.

B. Need Improved Water Quality Monitoring

Note: See also specific comments related to Agriculture-Monitoring and Tracking, Pesticides-Monitoring and Tracking, and Forestry-Pesticides.

Comment: Several comment letters expressed concern about the adequacy of Oregon's water quality monitoring programs, especially with regard to monitoring after aerial application of pesticides and herbicides on forest lands. Commenters stated that Oregon does not have monitoring programs in place to adequately assess whether pollution controls are achieving their goals and protecting water quality. Therefore, it is difficult for the State to determine if and when additional management measures are needed, as CZARA requires.

Commenters suggested several different monitoring approaches that Oregon could implement to adequately protect water quality. These included: requiring turbidity monitoring of streams during and after rainstorms and taking enforcement action when excess turbidity is found; requiring recurrent road surface condition monitoring; requiring more frequent inspections of drinking water, especially when pesticide spraying occurs; and improving upon a recently developed strategy for determining agricultural landowners' compliance with water quality rules.

Several other comment letters stated that Oregon's monitoring and tracking programs were adequate and commended the State's greater focus on water quality monitoring over the past few years.

Response: NOAA and EPA appreciate commenters' concerns about the adequacy of Oregon's water quality monitoring programs. The federal agencies agree that for some issues, e.g., pesticide effects in non-fish bearing streams, monitoring data may be insufficient. For example, the findings document recommends the state to make continued improvements in monitoring and tracking of coastal nonpoint source pollution and best management practice implementation related to the additional management measures for forestry within the coastal nonpoint management area.

However, NOAA and EPA did not propose a finding on the approvability of the overall monitoring and tracking elements of Oregon's Coastal Nonpoint Program and did not solicit comment on this issue at this time. The public will have an opportunity to comment on this aspect of Oregon's program if, at some point in the future, the agencies propose to fully approve Oregon's coastal nonpoint program. (See also the appropriate Forestry and Agriculture sections in this document for responses to specific comments about the monitoring and tracking efforts related to Oregon's forestry and agriculture programs.)

C. Enforcement

Comment: One commenter noted that Oregon fails to systematically address water quality standard violations caused by excess sedimentation.

Response: CZARA requires state coastal nonpoint programs to "provide for the implementation" of the 6217(g) management measures (Section 6217(b)). NOAA and EPA have identified sediment impacts from forestry activities that have not been addressed through the standard suite of management measures and have required Oregon to address sediment impacts through additional management measures for forestry.

Implementation of Oregon's coastal nonpoint program and evaluation of the effectiveness of that program will occur after federal program approval. Section 6217(c)(2) of CZARA calls on states to implement their approved programs through changes to their nonpoint source management plan, approved under Section 319 of the Clean Water Act, and through changes to its coastal zone management program, developed under Section 306 of the Coastal Zone Management Act. Therefore, NOAA and EPA evaluate how well a state is implementing its coastal nonpoint program through routine assessment mechanisms for the state's Nonpoint Source Management Program and Coastal Management Program.

V. CRITICAL COASTAL AREAS AND ADDITIONAL MANAGEMENT MEASURES

A. Process for Identifying Critical Coastal Areas and Additional Management Measures is Not Effective

Comment: One comment letter states that Oregon's process for identifying critical coastal areas and the need for additional management measures, which relies largely on the state's Clean Water Act 303(d) listing process for impaired waters and TMDL program, is flawed in several ways. Specifically, the commenter believes Oregon's Clean Water Act section 303(d) listing process is not effective. The comment asserts that the state fails to meet the 303(d) list regulatory requirements to "assemble and evaluate all existing and readily available water quality related data and information to develop the list" and that the State does not use nonpoint source assessments to develop its 303(d) lists. The comment also asserts that Oregon ignores a variety of technical information available to help identify land uses that consistently cause or contribute to water quality standard violations. In addition, the commenter noted that Oregon does not use TMDLs to identify critical coastal areas and assess where existing CZARA management measures are not adequate for meeting water quality standards, as required for CZARA approval. The commenter also notes that the associated TMDL water quality management plans do not support an effective coastal nonpoint program. For example, despite the numerous temperature TMDLs that have been developed in Oregon's coastal watershed, the comments assert that load allocations have not been used to determine minimum riparian buffer width, height, or density to achieve the load allocation.

Response: NOAA and EPA did not propose a finding on the approvability of Oregon's process for identifying critical coastal areas and additional management measures and did not solicit comment on these issues at this time. The public will have an opportunity to comment on these aspects of Oregon's program at some point in the future before the agencies fully approve Oregon's coastal nonpoint program.

B. NOAA and EPA Lack Authority to Require Additional Management Measures

Comment: Two commenters stated NOAA and EPA do not have the authority to require Oregon to develop additional management measures that go beyond the original management measures in the

CZARA guidance. They note that CZARA states additional management measures are triggered when, "as determined by the State," there is a failure for coastal waters to attain or maintain applicable water quality standards or protect designated uses 16 U.S.C. 1445(b)(1)(A). The commenters also claim that the programmatic guidance for the Coastal Nonpoint Program further supports this point because it calls on the state, not NOAA and EPA, to identify additional management measures, if necessary, to achieve and maintain water quality standards. They further note that the guidance indicates that the state is to identify additional management measures only within state-designated critical coastal areas to address state-identified land uses that may cause or contribute to water quality degradation.

Response: NOAA and EPA have the authority to impose additional management measures that are necessary to achieve applicable water quality standards and protect designated uses. CZARA requires that a state program provide for "[t]he implementation and continuing revision from time-to-time of additional management measures . . ." 16 U.S.C. 1445b(b)(3). States have the flexibility to develop and implement the specific management measures necessary to meet water quality standards and protect designated uses, but the statute does not vest the state with exclusive authority to decide whether additional management measures are required.

CZARA establishes a three-part process for how additional management measures are identified. One of the first steps in this process is the identification of land uses that may cause or contribute significantly to the degradation of: (1) "coastal waters where there is a failure to attain or maintain applicable water quality standards or protect designated uses, as determined by the State pursuant to its water quality planning processes" (16 U.S.C. 1445b(b)(1)(A)); or (2) "those coastal waters that are threatened by reasonably foreseeable increases in pollution loadings from new or expanding sources" (16 U.S.C. 1445b(b)(1)(B)). For the latter, CZARA is silent regarding whether only states can make this determination and for the former, the "as determined by the State" clause clarifies that the water quality standards and designated uses referenced in this subsection are those standards and designated uses the state has established. CZARA does not, however, limit the determination of which land uses are causing a failure to attain and maintain those water quality standards and designated uses to the determination of the state alone. The statute does not require that the sole authority for identifying additional management measures remain up to the discretion of the state. The federal agencies interpret the statute to afford federal agencies a role in identifying land uses and areas where additional management measures are necessary, and to provide technical guidance about what those measures should include. The state then designs measures to meet this programmatic need.

The development and approval guidance for the program discusses states developing processes to designate additional management measures (see Section III.D pgs. 22-31), and the guidance also explicitly states that "if existing information indicates that the implementation of the [6217](g) measures will not be adequate to attain or maintain water quality standards . . . then the state program must specify, at the time of program submission, additional management measures applicable to the appropriate land uses and critical coastal areas" (Section III.D.4.1, pg. 27). Since Oregon failed to specify additional management measures for forestry in its initial submission even though existing information, such as Coastal Salmon Restoration Initiative, indicated that the standard 6217(g) forestry management measures will not be sufficient for attaining water quality standards and protecting designated uses, such as supporting salmonids, it was within NOAA and EPA's authority to place a condition on Oregon's program requiring the State to identify and begin applying additional management measures where water quality impairments and degradation of designated uses attributable to forestry exist despite implementation of the (g) measures.

C. NOAA and EPA Need to Impose New Additional Management Measures

Comment: Some commenters noted that CZARA requires Oregon to demonstrate that it has additional management measures in place to meet water quality standards and protect designated uses. The commenters noted that Oregon has not met this requirement since water quality standards are still not being met and designated uses are not being protected. They are supportive of placing additional management measure requirements on Oregon's coastal nonpoint program and suggested specific measures or nonpoint source issues that the additional measures should address (see specific comments below).

Response: Beyond the requirements for additional management measures for forestry that NOAA and EPA placed on Oregon's program during the 1998 conditional approval findings, the federal agencies believe specific additional management measures to address other coastal water quality issues are not needed at this time for CZARA approval. The other CZARA 6217(g) management measures are broad enough to protect water quality, when implemented effectively. For coastal nonpoint program approval purposes, CZARA does not require states to have clean water throughout their coastal nonpoint program management areas or to have additional management measures identified to address all water quality impairments. Rather, states, like Oregon, must have processes in place to identify and implement additional management measures, when needed (i.e., when the existing 6217(g) management measures are not sufficient for achieving water quality standards and protecting designated uses (see Section 6217(b)). This process for identifying additional management measures is what NOAA and EPA will evaluate when the federal agencies are ready to approve Oregon's program.

VI. PESTICIDES AND TOXICS—GENERAL

Note: NOAA and EPA received a variety of comments related to pesticides. Summaries of the general pesticide comments and the federal agencies' responses are provided below. See Agriculture-Pesticides and Forestry-Pesticides for a full discussion of the comments received related to pesticides.

A. Adequacy of Oregon's Coastal Nonpoint Program to Address Pesticides and Other Toxics

Comment: Several comment letters noted that Oregon needs to improve how it addresses nonpoint source pollution caused by toxics, including pesticides, herbicides, and Superfund contaminants. Commenters specifically noted they believed there was excessive use of toxic chemicals in agriculture and forestry practices. One comment letter was also concerned about Superfund contamination impacting shellfish harvests.

Commenters expressed their concerns with the ability of Oregon's existing pesticide management program to protect the quality of water in streams and groundwater as well as protect human health and aquatic species and called for more federal oversight. One comment letter supported this statement by citing results from a watershed council herbicide study that found that pesticides used along roadsides, agricultural fields, and forestry operations were all evident in Oregon's waterways. The commenter noted that while applicators may have applied the herbicide correctly, the study demonstrates runoff is still occurring, indicating that the state's rules are ineffective at protecting water quality from herbicide application. Several other comment letters provided personal accounts of health impacts they believe to be due to pesticide exposure.

One commenter cited various studies to demonstrate pesticide impacts to human health and the environment from one commonly used herbicide, glyphosate. For example, a few studies in the late 1990s and early 2000s linked exposure to glyphosate to an increased risk of non-Hodgkin lymphoma. Other health effects from exposure to glyphosate described by the commenter included breast cancer, ADD/ADHD, increased risks of late abortion, endocrine disruption, and possible increased risk of multiple myeloma. According to studies from the late 2000s, glyphosate causes altered immune responses in fish, and a commonly used glyphosate product is lethal to amphibians. Other environmental impacts from glyphosate were also described. The commenter contended that these human health and environmental impacts have been attributed to exposure to levels of glyphosate below the EPA-established standards. The commenter also stated that studies show adverse health effects of other formulated glyphosate products.

Several commenters felt the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), coupled with the state's pesticide rules and its Water Quality Pesticide Management Plan, were insufficient to control polluted runoff from pesticide application to Oregon's coastal waters. Some comment letters stated that Oregon needs to improve pesticide application restrictions and protections for all classes of streams. One letter noted that neighboring states have stricter requirements for pesticide use and application. Another letter cited the lack of additional ODA rules beyond the EPA pesticide labels, which they state have been demonstrated to be inadequate to protect threatened coho salmon.

A few comment letters also stated that not only do they believe Oregon has weak pesticide laws but compliance with the existing rules is poor. One letter suggested that federal label restrictions for atrazine are not being followed. Other commenters complained about the state's poor record-keeping of pesticide application and inadequate notice of scheduled spraying events that would occur near their neighborhoods and homes.

Other comment letters disagreed. Commenters believed Oregon has adequate pesticide controls in place which are consistent with CZARA 6217(g) requirements. They state that state rules (OAR 629-620-0400) provide for the protection of waters of the state and other resources during chemical application. In addition, applicators are required to follow the FIFRA label requirements and meet additional state requirements, including when and under what conditions pesticides can be applied, mixed, stored, loaded, and used. The commenters also state that under state rules, applicators need to take into account weather conditions such as temperature, wind, and precipitation to protect non-target forest resources. A comment letter also noted that the FIFRA labels have undergone significant changes since 1998 on how pesticides can be applied to forests. In addition, the commenter asserts that the EPA-approved Oregon Water Quality Pesticide Management Plan provides additional description of the state's approach to pesticide management.

Response: NOAA and EPA recognize that many commenters are concerned about the use of pesticides and toxics in Oregon and the adverse impacts they have to the environment and public health. After carefully considering all comments received and available data, NOAA and EPA find that Oregon can do more to strengthen these programs to protect coastal water quality and designated uses, specifically with regard to the aerial application of herbicides on forestlands. (See rationale for additional management measures for forestry in the decision document for further discussion of the federal agencies' rationale for this finding). NOAA and EPA will continue to work with Oregon within our authorities to improve the state's pesticide management efforts to ensure coastal water quality, human health, and designated uses are protected.

Some commenters asserted that Oregon is not adequately enforcing its existing pesticide laws and that current label requirements were not being followed. EPA and NOAA recognize these concerns, however these issues are not something that CZARA considers for the approvability of a state's coastal nonpoint program (see Section IV.C, Enforcement).

Finally, regarding the expressed concern over Superfund contaminants, CZARA does not speak to Superfund contaminants. Rather Superfund contaminants are more appropriately addressed through the Comprehensive Environmental Response, Compensation, and Liability Act (the Superfund Act).

B. Pesticides—Adequacy of Overall Pesticide Monitoring Efforts

Comment: Several commenter letters noted that Oregon needed to strengthen its pesticide monitoring efforts. They stated that Oregon does not have a program in place to determine if federal label requirements are being followed. They further stated that monitoring is not being conducted widely and regularly for pesticide runoff. One comment letter noted that while unknown and unmonitored pesticide uses are a problem, unknown and unmonitored health and environmental risks from pesticides are also a significant problem.

Commenters discussed various monitoring programs that are needed in Oregon, including programs to: monitor pesticide use and impacts; assess the effectiveness of pesticide best management practices; monitor for pesticides in the air; monitor for air deposition; monitor for pesticides in surface and drinking waters directly following an aerial spray event (rather than every three years). They also raised the need for monitoring programs to track whether federal label laws are being complied with. One comment letter also noted that the Oregon lab that tests for pesticides does not have the capacity to test for glyphosate, a commonly used herbicide.

Another comment letter stated that most pesticide risk assessments are based on old and incomplete data and endpoint evaluations and that these assessments need to be updated with more current information for a better understanding of the true impact of pesticides and acceptable exposure limits. The commenter also stated that there is little to no understanding of effects from "inert" ingredients in pesticides and that there needs to be more testing and disclosure of these inert ingredients.

A few comment letters also objected to NOAA and EPA's statement in the proposed decision document commending the state's Water Quality Pesticide Management Plan and new pilot pesticide monitoring study. They did not think these programs should be praised as part of Oregon's Coastal Nonpoint Program. The commenters did not believe the state's claim that pesticide monitoring would support an adaptive approach and demonstrate when additional controls are needed. They stated that Oregon conducts very little pesticide monitoring to drive an adaptive approach and noted that none of the pilot monitoring sites are located in the coastal zone.

A few other comment letters stated pesticide monitoring is adequate. They contend that monitoring efforts have shown that current pesticide management practices do not result in detrimental impacts. For example, one comment letter described a study by Dent and Robben (2000) on fish-bearing streams that found no pesticide contamination at or above 1 ppb in any of the post-spray water samples analyzed. According to the commenter the study concluded that the current Forest Practices Act and pesticide rules are effective at protecting water quality along Type F (fish-bearing) and Type D (drinking water) streams. However, another comment letter discussing the same study asserted the study may have underestimated pesticide levels.

Response: NOAA and EPA acknowledge that limited studies in Oregon's coastal areas have not found pesticides that exceed toxic thresholds for humans or aquatic life in fish-bearing and drinking water streams.[6] However, the federal agencies believe Oregon can do more to improve its pesticide monitoring and tracking efforts in the coastal areas. The federal agencies have revised the decision document to recommend some specific actions the state could take to improve its pesticide monitoring and tracking efforts such as increasing monitoring on non-fish bearing streams in coastal areas and improving ODF's Notification of Operation form to include protections for non-fish bearing streams. NOAA and EPA recognize many of the strengths of Oregon's Water Quality and Pesticide Management Plan and the Pesticide Stewardship Partners Program. However, the federal agencies have also revised their discussion of these programs to further strengthen these programs, particularly with additional monitoring in the nonpoint coastal management area (See additional management measures for forestry rationale in the final decision document).

VII. NEW DEVELOPMENT

Comment: Many comment letters agreed with NOAA and EPA's proposed finding that Oregon has failed to fully address CZARA requirements for new development, specifically that the state has not provided a commitment to use its back-up authorities to ensure implementation of the management measure requirements when needed. However, a few comment letters did not believe Oregon had an effective program to control stormwater runoff from new development and meet water quality standards. They asserted that the state needed to do more than the voluntary program described. For example, one comment letter noted that the Total Maximum Daily Load (TMDL) Implementation Guidance must require (not recommend) designated management agencies (DMAs) to follow National Pollutant Discharge Elimination System (NPDES) Phase II requirements for small municipal separate storm sewer systems (MS4s). Another option that was suggested was that NOAA and EPA should require the state to incorporate the CZARA new development management measures into an existing NPDES General Permit or craft a new permit.

Not all comment letters were supportive of new regulatory requirements to address the new development management measure. For example, one commenter preferred that the state use its existing authorities and stormwater permits more effectively rather than place additional requirements on small cities and counties. The commenter believed that small cities and counties are not the main source of impairment and often lack the technical expertise and financial resources to meet the new requirements and suggested the coverage for the 1200C NPDES general permit could be expanded by decreasing the acreage threshold for the permit or using an approach similar to the 1200OCS permit used to address water quality problems in the Columbia Slough.

Response: During the public comment period, NOAA and EPA received information from Oregon that has resulted in a shift in the federal agencies' position on the approvability of the State's approach to meeting this management measure. In its March 2014submittal, Oregon presented a final version of its TMDL implementation plan guidance for managing post-construction stormwater. The State further provided information on how it will use the guidance to voluntarily implement the new development

[6] Dent L. and J. Robben. 2000. *Oregon Department of Forestry: Aerial Pesticide Application Monitoring Final Report*. Oregon Department of Forestry, Pesticides Monitoring Program. Technical Report 7. March 2000.

management measure, to track this implementation with milestones, and to use State regulatory authorities to accomplish the objective of this measure in the event that the State's voluntary approach falls short of meeting the tracked milestones. With the benefit of this new information, the federal agencies now believe that the previous condition placed on Oregon for meeting the new development management measure no longer provides a basis for finding that Oregon has failed to submit an approvable coastal nonpoint program.

Highlights of the state's approach for meeting the new development management measure include a recently expanded list of 11 designated MS4 communities within Oregon's coastal nonpoint management area that are now subject to NPDES Phase I or Phase II stormwater regulations, as well as Oregon's recently finalized TMDL implementation strategy as it applies to implementing the new development management measure. Of the 51 non-MS4 communities across Oregon's coastal nonpoint management area, at least 38 are likely to be required to implement post-construction stormwater management as a result of existing or pending TMDLs, with additional communities potentially brought into these efforts in the future. Collectively, these 49 communities/municipalities comprise approximately 92 percent of the combined population of the 62 communities across Oregon's coastal nonpoint management area.

VII. ONSITE SEWAGE DISPOSAL SYSTEMS

A. Adequacy of Oregon's Programs to Meet CZARA Requirements for OSDS

Comment: Many comment letters agreed with NOAA and EPA's proposed finding that Oregon has failed to fully address CZARA requirements for existing onsite sewage disposal systems (OSDS), specifically ensuring routine inspections. While some comment letters were supportive of the state's planned outreach efforts to promote voluntary inspections, they agreed with NOAA and EPA that Oregon does not have a tracking program in place to assess the effectiveness of its voluntary program nor has the state demonstrated a commitment to use its back-up enforcement authority to ensure inspections, when needed.

Other comment letters did not support Oregon's voluntary approach. They felt the state needed to require routine inspections and have more direct enforcement authorities. They believed that Oregon's OSDS management program was not sufficient for meeting water quality standards and that enforcement action was minimal for existing leaking septic systems. One commenter noted that Dunes City passed an OSDS ordinance to require routine inspections because previous voluntary approaches did not work. Another commenter was concerned about several communities (Lane County and the City of Florence) allowing septic systems to be sited near lakes.

Response: During the public comment period, NOAA and EPA received a information from Oregon that has resulted in a shift in the federal agencies' position on the approvability of the State's approach to meeting this management measure. In its March 2014submittal, Oregon presented a greatly expanded voluntary approach, with realistic milestones for implementing the inspections management measure element over time, a viable strategy for tracking this implementation, and a commitment to using its back-up enforcement authority to ensure implementation. CZARA does not require a regulatory approach for meeting the 6217(g) management measures. NOAA and EPA guidance from 2001 allow voluntary approaches, provided that the following are in place: a description of the voluntary or incentive-based programs the states will use to encourage implementation of the management

measures, including the methods for tracking and evaluating those programs; a legal opinion from the attorney general or an attorney representing the agency with jurisdiction for enforcement that such authorities can be used to prevent nonpoint pollution and require management measure implementation, as necessary; and a description of the mechanism or process that links the implementing agency with the enforcement agency and a commitment to use the existing enforcement authorities where necessary. Oregon has provided these items. Additionally, approximately 10 percent of the OSDS within the coastal nonpoint management area are alternative decentralized treatment systems with state requirements for service contracts with certified maintenance providers and for submittal of annual reports to local onsite management systems agents and Oregon DEQ.

The Oregon legislature passed a new law requiring greater disclosure by a seller of a property served by a septic system or alternative wastewater treatment system on the condition of that system. Oregon DEQ worked closely with the Oregon Association of Realtors to develop and provide training on the new law and to provide much greater homeowner education, and the parties entered into a multi-faceted formal partnership in November 2013 to cooperate on encouraging greater septic system inspections. Oregon believes the new seller disclosure requirement and educational efforts will raise awareness of OSDS issues and prompt buyers to obtain OSDS inspections as part of real estate transactions, similar to home inspections that are now routine for home sales. Additionally, in early 2014, Oregon launched its Septic Smart program, modeled after EPA's national Septic Smart initiative. The Oregon Septic Smart program is designed to help educate Oregonians about the importance of septic systems, septic system inspections and proper septic system maintenance through providing Oregonians with easy access to important information about their septic systems and with easy access to certified industry professionals that perform septic system inspections.

Oregon has established a goal with interim milestones for its voluntary incentive-based program, as well as a strategy for tracking and evaluating the strategy's effectiveness. Specifically, Oregon expects that within 15 years, these collective efforts will result in inspection of 95 percent of all the OSDS associated with property transfers across the coastal nonpoint management area. Oregon DEQ has set an interim goal to achieve inspections for 60 percent of residential property transfers involving OSDS in the coastal counties by 2014 and 80 percent by 2020. Oregon is tracking the effectiveness of the State's voluntary initiative, primarily through the annual reporting requirements by certified inspectors who participate in Oregon Septic Smart. While participation in Oregon Septic Smart is voluntary, it provides a competitive business advantage for certified inspectors. The annual reports require separate tracking of OSDS inspections associated with property transfers (versus inspections conducted for other reasons, which are also tracked). The report includes information on the number and outcomes of OSDS inspections. Collectively, these reports will help to guide outreach and enforcement efforts at the county level. This tracking will be augmented by information from lenders, brokers, realtor surveys, and GIS analysis.

Oregon has also committed to using existing legal authorities where necessary to implement the management measure. In the event the State's voluntary incentive-based approach falls short, Oregon has committed to use ORS 454.625 and ORS 468.020 to propose rules for adoption by the Oregon Environmental Quality Commission (EQC) to implement the inspections element of the operating OSDS management measure. In the event the EQC does not pass adequate rules, the Oregon Attorney General's Office has provided a legal opinion asserting that the State has adequate back-up authority (ORS 468B et. seq.) to require implementation of the 6217(g) management measures, as necessary. Specifically, the state has the authority under ORS 468B.015 and ORS 468B.020 to prevent and control pollution from any nonpoint source, including OSDS.

As for siting septic systems near lakes, Oregon has protective setback buffers in place for new systems and water bodies. CZARA requires protective setback buffers under a separate management measure for which NOAA and EPA have previously provided interim approval. While well-functioning septic systems can be protective of water quality, particularly when nitrogen reduction strategies are incorporated, not all systems are protective of water quality, especially older systems that have ceased to function properly or are not sited with sufficiently protective setbacks. This is why proactive inspection of septic systems is critical.

B. More Needed to Improve OSDS Management

Comment: A few comment letters noted specific actions Oregon needs to take before NOAA and EPA approve the state's programs for meeting the OSDS management measure. Actions include: siting OSDS in locations where they are properly separated from groundwater; restricting system density to reduce nitrate input to groundwater; ensure proper sizing of the system to minimize concentrations of contaminants and prevent hydraulic overloading; requiring mandatory inspections every 3-5 years or at the time of property transfer; requiring mandatory pumping after each inspection whenever needed; establishing a step-by-step program for the state to help homeowners with grants and low-cost loans that need support for pumping or replacing failing systems; and establishing explicit enforcement mechanisms.

Response: NOAA and EPA agree that siting OSDS in locations where they are properly separated from groundwater, controlling nitrate inputs from septic systems, and ensuring proper sizing of OSDS are important. These components are requirements of the management measures for new OSDS. NOAA and EPA provided interim approval of the new OSDS management measure based on Oregon's requirements for ensuring that new septic systems are located away from unsuitable areas, with protective vertical and horizontal separation distances from ground- and surface water resources, as well as steps that Oregon has taken to control excessive nitrogen loadings from new and existing OSDS. With regard to increasing the frequency of inspections existing OSDS, please refer to the response in section VII.A above.

C. Concerned with Sewage Discharge to Waterways During Rain Events

Comment: One comment letter noted that some communities, such as Myrtle Point and Powers, discharge sewage during rain events, preventing shellfish harvest.

Response: The commenter asserts that heavy rains dump raw sewage into the Coquille River from Myrtle Point and Powers. The entire length of the Coquille River is currently listed as impaired for bacteria and other causes, and failing septic systems have been identified as a potential source for this impairment. Oregon DEQ is currently establishing a TMDL for these impairments and, by law, designated management agencies must develop a TMDL implementation plans that meet water quality targets 18 months after the State issues the final TMDL. Oregon DEQ is also committed to exercising its authority to require DMAs to develop and implement strategies for meeting water quality standards, and to track this implementation. NOAA and EPA believe that Oregon's new Septic Smart program to promote expanded inspections of septic systems will go a long way to prevent failures. NOAA and EPA further believe that Oregon has the necessary incentives and enforceable policies and mechanisms to ensure that the inspections element of the existing OSDS management measure is met.

IX. FORESTRY

A. General Effectiveness of Existing Forestry Programs and Adequacy for Meeting CZARA Requirements

Comment: The majority of comment letters agreed with NOAA and EPA's proposed finding that Oregon's existing forest practices are not sufficient to meet the CZARA requirements and that additional management measures for forestry are needed. They argued that current land use laws and the Oregon Forest Practices Act (FPA) and rules do not adequately prevent impacts to water quality or designated beneficial uses (e.g., fish spawning, migration, etc.) from forestry activities. (See additional forestry comments for more specific concerns raised about various elements of Oregon's forestry program.)

Several comment letters disagreed with language in the FPA that provides that compliance with the forest practices rules equates to compliance with water quality standards; the commenters do not believe the FPA practices are sufficient to achieve and maintain water quality standards. Commenters stated that the Oregon Department of Environmental Quality (DEQ) has failed to use its authority to address these inconsistencies between the FPA practices and water quality standards. One comment letter asserted that NOAA and EPA failed to use their authority under CZARA to address the issue.

Comment letters were concerned that FPA enforcement actions are conducted after water quality damage has occurred. One comment letter contended that the lack of political will within the State to address water quality problems along with State tax benefits to the timber industry contribute to the lack of resources State agencies have to improve degraded water quality. Commenters recommended NOAA and EPA look at various studies that demonstrate the adverse impacts of the forestry industry on water quality and designated uses in Oregon (see pg. 10-11 of public comment #58 and the attachments to public comment #57 as examples).[7]

Other comment letters disagreed with NOAA and EPA's proposed finding. They believed Oregon does have programs in place to meet the CZARA forestry requirements and that no additional management measures are needed. These commenters stated the FPA "establishes a dynamic program that responds promptly and deliberately to environmental issues as they arise" and requires that water resources, including drinking water, be maintained. They stated that the FPA requires that best management practices be established to ensure maintenance of water quality standards, and that this FPA provision adhered to the CZARA requirement that the State establish additional management measures to maintain applicable water quality standards.

The commenters further elaborated that the FPA already requires best management practice monitoring, including for pesticide use and landslides, and that the State has proven processes in place to identify and implement additional management measures for forestry, when needed. They highlighted that past monitoring efforts have resulted in improvements to the forest practices rules, such as strengthening protections for landslide prone areas when public safety is at risk and making improvements to road management procedures. One comment letter also noted that the Forestry Board has completed implementation of the recommendations of the Sufficiency Analysis, as well as the IMST, by adopted rules in 2007. They also comment that small but measurable impacts to water quality

[7] http://coastalmanagement.noaa.gov/nonpoint/oregonDocket/publicComments.html

conditions attributable to forestry effectively recover over time and cite results from the RipStream analysis[8] and Watershed Research Collaborative (WRC) paired watershed studies.[9]

Response: As reflected in the findings document, NOAA and EPA continue to find that Oregon has not satisfied the condition placed on its coastal nonpoint program to "identify and begin applying additional management measures where water quality impairments and degradation of beneficial uses attributable to forestry exist despite implementation of the (g) measures."[10] In its 1998 conditional approval findings, NOAA and EPA identified specific areas where existing practices under Oregon's FPA and rules should be strengthened to attain water quality standards and fully support beneficial uses including: better protections for medium and small fish-bearing and non-fish bearing streams, including intermittent streams; better protections for areas at high-risk for landslides; better management and maintenance of forestry roads, including so-called "legacy" roads; and better protections for non-fish bearing streams during the aerial application of herbicides.[11] Based on the comments received, NOAA and EPA have revised the findings document to more clearly reference scientific studies that support the need for these additional management measures.

NOAA and EPA disagree with the comment letter that stated the Forestry Board has completed implementation of the recommendations of the Sufficiency Analysis, as well as the IMST, by adopting rules in 2007. Key recommendations in the Sufficiency Analysis the and/or the IMST that have not been addressed by the new rules include, but are not limited to, greater riparian protections for small non-fish bearing streams, management measures for high-risk landslide sites to minimize impacts to soil and water resources, and measures to address legacy roads.

NOAA and EPA recognize that the FPA has language stating that water resources and drinking water must be protected and that the State's monitoring programs for forestry practices have resulted in noteworthy improvements to its FPA rules. Among those improvements are amendments to the FPA rules to require the identification and management of landslide hazard areas that present a risk to public safety. The federal agencies have included language in the decision document that acknowledges these FPA rule improvements. As the findings document more fully explains, while the State should be commended for these positive achievements, these actions are not enough to satisfy the additional management measure for forestry condition. For example, existing science, including studies like the RipStream analysis carried out by ODF, show that current FPA riparian protection practices are not sufficient to achieve water quality standards. Some results from other studies, such as the WRC's paired watershed studies, are not conclusive regarding potential short-term impairments recovering over time. Additional management measures are necessary not only to achieve water quality standards and designated uses but also to protect coastal waters that are threatened by further pollution loadings from forestry activities that remain unaddressed, as identified by the federal agencies in 1998.

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[8] Oregon Department of Forestry's Riparian and Stream Temperature Effectiveness Monitoring Product (RipStream) Analysis Articles include:
Groom, J.D., L. Dent, and L.J. Madsen. "Response of Western Oregon Stream Temperatures to Contemporary Forest Management," *Forest Ecology and Management*, 262.8 (2011): 1618-1629.
Groom, J.D., L. Dent, and L.J. Madsen. "Stream temperature change detection for state and private forests in the Oregon Coast Range," *Water Resources Research*, 47.1 (2011). Accessed November 27, 2013. doi:10.1029/2009WR009061.
Dent, L., D. Vick, K. Abraham, S. Shoenholtz, and S. Johnson. "Summer temperature patterns in headwater streams of the Oregon Coast Range," *Journal of the American Water Resources Association*, 44 (2008): 803-813.

[9] http://watershedsresearch.org/

[10] USEPA, 1993. Guidance Specifying Management Measures For Sources of Nonpoint Pollution in Coastal Waters, January 1993. Issued Under the Authority of Section 6217(g) of the Coastal Zone Act Reauthorization Amendments of 1990. 840-B-92-002

[11] See conditional approval findings for Oregon's Coastal Nonpoint Program: http://coastalmanagement.noaa.gov/nonpoint/docs/findor.txt

NOAA and EPA disagree with the commenter that stated NOAA and EPA are not using their authority under CZARA to ensure forest practices in Oregon achieve and maintain water quality standards. On the contrary, NOAA and EPA's finding that Oregon has failed to submit a fully approvable coastal nonpoint program because the state has not satisfied its additional management measures for forestry condition, demonstrates that NOAA and EPA are using their authority under CZARA to bring about improvements in Oregon's forest practices.

According to State rule, the best management practices the Board of Forestry (Board) adopts are deemed sufficient for achieving and maintaining water quality standards (ORS 468B.110(2), ORS 527.756, and ORS 527.770). NOAA and EPA recognize that these provisions present some challenges to ODEQ in enforcing water quality standards on forestlands. However, ODEQ does have tools it can use to remove the "best management practices shield" (ORS 527.770) that will allow it to take enforcement action when forestry activities are degrading water quality. The Environmental Quality Commission (EQC), the rulemaking body for ODEQ, can petition the Board if it believes the FPA rules are not adequate for achieving water quality standards. The Board (with EQC concurrence) can either terminate the review or proceed with rulemaking. If the Board fails to complete its rulemaking in the two-year time period or decides that the revisions are not needed, the "best management practices shield" is lifted. During the rulemaking process, the EQC can also request the Board employ interim steps "to prevent significant damage to beneficial uses." If requested by EQC, the Board has to take action.

Finally, per NOAA and EPA's authority under CZARA, NOAA and EPA leave it to the State's discretion on how efforts to protect water quality are funded and enforced. In determining the adequacy of the state's coastal nonpoint program, the federal agencies look at the processes the state has in place to implement the CZARA 6217(g) management measures and whether the state has satisfied the conditions placed on its program. (See response to Comment IV.C (Enforcement) for a more in-depth discussion of the enforcement issue).

B. NOAA and EPA have Failed to Show that Oregon's Forest Practices Rules Do Not Meet Water Quality Standards

Comment: One comment letter argued that NOAA and EPA have failed to show that Oregon's forest practices rules do not meet water quality and beneficial use objectives; the commenter asserted that a "large body of science" demonstrates that Oregon forest practices have a "neutral to positive" effect on aquatic life. The comment states that NOAA and EPA need to provide scientific evidence to support a connection between a particular land use and a "significant degradation" of water quality or designated uses. Comment claims that NOAA and EPA failed to reference specific water quality standards for which additional management measures are required. In addition, the comment states that making a decision that is not backed by solid science would be arbitrary.

Response: As fully explained in the findings document, NOAA and EPA have demonstrated through scientific evidence, that Oregon's forest practices rules do not meet water quality and beneficial use objectives. NOAA and EPA cite ODF's 2011 RipStream studies that demonstrate that current FPA riparian protection practices on private forest lands are not sufficient to achieve and maintain water quality standards, specifically the protection of cold water criterion of the temperature standard. Where applicable, NOAA and EPA have also revised the findings document to clarify specifically which water quality standards are not being met. In addition, there are several hundred river miles in Oregon's coastal nonpoint management area impaired for temperature and other parameters within and immediately downstream of forested areas.

However, it is important to note the need to develop and adopt additional management measures under CZARA is not driven solely by identifying coastal waters that fail to attain or maintain applicable water quality standards or protect designated uses. CZARA also states that the need for additional management measures could be triggered by identifying land uses that may cause or contribute significantly to the degradation of "those coastal waters that are threatened by the reasonably foreseeable increases in pollution loadings from new or expanding sources" (Sec. 6217(b)(1)(B), 16 U.S.C. section 1455b). In the findings document, NOAA and EPA have provided scientific evidence to establish that coastal waters and designated uses are threatened due to reasonably foreseeable pollutant loadings from continued forestry activities.

C. State has Process In Place to Satisfy CZARA Additional Management Measure Requirement

Comment: A comment letter stated that the process for the Environmental Quality Commission (EQC) to petition the Board of Forestry, as well as other administrative measures and processes under State law, effectively satisfy CZARA requirements under Section 6217(b)(3) to implement and continue to revise from time to time additional management measures applicable to the land uses that are necessary to achieve and maintain applicable water quality standards and protect designated uses. They also asserted that the Watershed Research Cooperative studies, especially the Trask paired watershed study, as well as the Hinkle study, demonstrate that Oregon's program, provides for the continuing revisions and implementation, as necessary, to achieve and maintain water quality standards, especially as it relates to riparian buffers for non-fish bearing streams.

Response: The NOAA and EPA findings are not based on the State's processes for the continuing revision and implementation of additional management measures. The basis for this finding is that Oregon has not identified and begun applying specific additional management measures where water quality impairments and degradation of beneficial uses attributable to forestry exist despite implementation of the (g) measures. In the 1998 findings document, NOAA and EPA identified specific areas where existing forest practices should be strengthened to attain water quality standards and fully support beneficial uses which included: the protection of medium, small, and non-fish bearing streams, including intermittent streams; the protection of all areas at high risk for landslides, not just those representing public safety risks; the need to better address road density and maintenance issues, particularly on so-called "legacy" roads; and need for better stream buffers during the aerial application of herbicides. As the decision document more fully describes, the State has not taken sufficient action related to these areas. Therefore, NOAA and EPA find that the State has not submitted a fully approvable program.

In regards to the petition process identified by the commenter, the federal agencies acknowledge that, should such a process be initiated, resulting actions by may well result in programmatic revisions sufficient to meet the conditions identified by the federal agencies in 1998, specifically, the additional management measures necessary to achieve and maintain water quality standards, and to protect designated uses, from nonpoint source pollution associated with forestry.

D. Importance of Forestry Riparian Management

Comment: Many comment letters stated that forest riparian management was an important tool for addressing erosion and water quality problems in coastal watersheds. These commenters believe that water quality problems are exacerbated by lack of adequate riparian buffers. One comment letter expressed the concern that "large companies with large land holdings" are conducting activities that impact people, wildlife habitats and water quality in the state. The commenter added that such activities

should be subject to legal oversight so as to limit pollution being released into waterways. Another letter pointed out that habitat and water quality indicators overlap, creating the need to fully examine how physical habitat and water quality are interconnected. The commenter added that because "…streams form a linked network, water quality and stream health is closely associated with the intensity and cumulative extent of forest management activities near streams of all sizes, in all parts of the network."

Commenters described a variety of benefits riparian buffers provide. A few commenters emphasized the negative impacts that can occur due to clear cutting and not providing sufficient riparian buffers. These impacts include increased soil erosion, increased stream temperature, and lack of pesticide filtration. One comment letter cited degraded lakes within the Sutton, Mercer, Woahink, and Siltcoos watersheds where clear cutting to the shores has occurred. Other letters discussed the effects of winter blow downs where "strong coastal winds accelerate through the clear cuts and abruptly hit the [stream] buffers with great force." A commenter stated that narrow, inadequate buffers are not able to stand up to these winds, subjecting trees to windthrow. The commenter contends that a lack of standing trees affects soil stability, ultimately resulting in runoff that can impact water quality.

Comment letters also pointed out the importance of riparian buffers in maintaining large woody debris (LWD). They stated large wood recruitment is essential to maintain biological and hydrological processes in streams (e.g., sediment retention and transport, habitat formation, substrate for biological activity) and is critical for salmonid populations. A commenter described how in a natural stream/riparian system, large wood is recruited from areas adjacent to streams and upslope, including unstable areas that move down toward streams. Moreover, the commenter noted that large wood was not just needed instream but also adjacent to the stream to support terrestrial processes. Another commenter noted that older forests and intact riparian areas, as well as large shifting beaver complexes contribute LWD to streams and help to maintain floodplains, habitat complexity, hyporheic flow, and hydrologic stability. However, the commenter explained, management of coastal lands has resulted in chronic and persistent disturbance and bare riparian areas along the lower reaches of coastal streams. This has led to low LWD, unstable banks, and high energy channels.

Other comment letters explained the importance of riparian buffers for controlling sedimentation into streams. A commenter pointed out that if riparian buffers are not required for non-fish bearing streams (headwaters), those streams become a source of excess sediment to networked fish-bearing channels as sediment is transported downstream, essentially decreasing or eliminating the effectiveness of riparian management zones in maintaining low turbidity at a watershed scale. The commenter also described how erosion and sedimentation contribute to losses in channel depth, the frequency and quality of pools, and off-channel habitat critical for fish rearing. Another commenter noted the need for regular dredging of the port at Brandon and other coastal facilities due to siltation caused by upstream erosion.

In addition, comment letters stated that increased sediment delivery and lack of LWD recruitment impact designated uses, such as salmonids and drinking water. Commenters explained how increased sedimentation contributes to increased levels of fine sediment, increased turbidity that can impair salmonid sight feeding and cause gill damage. Another comment letter discussed how increased sediment delivery can contribute to increased water temperatures. Others pointed out the role forest riparian buffers play in maintaining healthy drinking water by filtering sediments, pesticides, and other pollutants from the water. One comment letter noted that even where narrow buffers exist along river

shores (e.g., the Siletz River), there are places where the forest buffer has been eliminated completely and streams that flow into the Siletz have no buffer zone at all.

Finally, a comment letter stated that large stream buffers play an important role in storing additional carbon and reducing greenhouse gas emissions.

Response: NOAA and EPA recognize the importance of riparian buffers along Oregon streams, including both small and medium fish-bearing streams and non-fish bearing streams. The federal agencies continue to find that Oregon's existing riparian management practices are not sufficient to protect water quality and designated uses from nonpoint source pollution related to forestry practices. The state still needs to adopt additional management measures to provide greater protection of forest riparian areas before NOAA and EPA can find that the state has fully satisfied its coastal nonpoint program requirements under CZARA.

NOAA and EPA revised the final findings document for Oregon's Coastal Nonpoint Program to include additional scientific information about the importance of riparian areas. As discussed in the findings document, riparian buffers play an important role in shading streams to maintain cold water needed for salmon. In the findings document, NOAA and EPA acknowledge that the Board of Forestry has been considering a rule change that would provide greater protections to small and medium fish bearing streams. This is an important step forward and NOAA and EPA encourage the state to complete the rulemaking expeditiously. NOAA and EPA also recognize that the rule change, if successful, will likely not address non-fish bearing streams. The federal agencies encourage Oregon to adopt great protection for non-fish bearing streams as well. For example, NOAA and EPA are supportive of the IMST finding that there is not a scientifically sound basis for managing riparian buffers based on the presence or absence of game fish. Non-game fish and other aquatic organisms play a role in the functioning of stream systems locally and contribute to downstream processes.[12]

E. Forestry Riparian Management Accomplishments

Comment: Speaking to the accomplishments of Oregon's coastal nonpoint program as it relates to forestry-riparian management, some comment letters emphasized their support for Oregon's existing rules and programs that are in place to manage the forest industry and maintain water quality and riparian protections. One comment letter pointed out that Oregon's Department of Forestry works to strengthen forest rules for riparian protection but faces political challenges that require "thoughtful science." The commenter noted the importance of maintaining the forest industry's support for water quality protection and acknowledged this process will take longer than Spring 2014.

Another comment letter noted that private landowners, foresters, and loggers all support the Oregon Forest Practices Act and believe there is a high level compliance with the rules. Another letter called attention to Oregon's fifteen plus years of "superior voluntary riparian watershed enhancement accomplishments" by the forest sector. That letter contends that EPA and NOAA's restrictions would "stifle these valuable watershed improvements." Lastly, another comment letter noted how Oregon's Department of Forestry has been doing good work to improve water quality and riparian habitat.

[12] Independent Multidisciplinary Science Team. 1999. Recovery of Wild Salmonids in Western Oregon Forests: Oregon Forest Practices Act Rules and the Measures in the Oregon Plan for Salmon and Watersheds. Technical Report 1999-1 to the Oregon Plan for Salmon and Watersheds, Governor's Natural Resources Office, Salem, Oregon

Response: Currently Oregon relies on both regulatory and voluntary measures to provide riparian protections for fish bearing streams and non-fish bearing streams. While these practices are better than having no protections in place, as discussed more fully in the findings document, the results of a number of studies show that Oregon's current riparian protection practices are not adequate to prevent sediment and temperature impacts to water quality and fully support beneficial uses. A broad body of science supports the position that changes must be made to the state's existing forestry riparian practices to achieve and maintain water quality standards. Having broad-based support for Oregon's Coastal Nonpoint Program, including from the forest industry, will help contribute to the program's success. That is why CZARA provides the states flexibility in determining how they should address the need for additional management measure to ensure the state has support for the approaches it decides to take.

NOAA and EPA appreciate the challenges the State faces as it considers a change to the FPA rules to provide greater riparian protection of fish-bearing streams and the importance of good science to support a rule change. In order to support the state's decision making process, NOAA and EPA experts have reviewed the literature for quality and relevance and have testified in front of the Board of Forestry to ensure that the Board is aware of and understands key studies. Both agencies stand ready to continue to assist the state, as needed, as it moves forward with the rule change.

Oregon has been working on its program conditions since 1998. As early as September 2010, the federal agencies notified the State that a final decision was anticipated on or about May 15, 2014, (which was later extended until January 20, 2015). Although the federal agencies understand a rule change takes time, NOAA and EPA cannot further delay a final finding on Oregon's Coastal Nonpoint Program.

F. Adequacy of Forestry Riparian Management for Protecting Small, Medium Fish-Bearing Streams and Non Fish-Bearing Streams

Comment: Many comment letters opined that Oregon's existing riparian management practices and forestry laws are inadequate to protect small and medium fish-bearing and non-fish bearing streams. Commenters focused on the use of no-harvest buffers, noting that small and medium streams receive minimal buffering (i.e., 20 feet) and small non-fish streams receive no buffering (except for the equipment exclusion). One comment letter reasoned that because riparian buffers are not required for small non-fish bearing streams, they become a source of sediment for connected fish-bearing channels thus compromising the effectiveness of the overall system of riparian management in maintaining sufficiently low turbidity.

Comment letters stated that the Oregon Forest Practices Act and other comparable forest practices have been widely criticized for failing to protect water quality and salmonid habitat (and provided examples of such failures related to inadequate shade, poor large wood recruitment, lack of tributary protection, and unstable slopes). They also stated that Oregon's forestry riparian protection standards lag behind those of their neighboring states, such as Washington and California. Commenters pointed to the National Marine Fisheries Services' determination that the Oregon Forestry Practices Act does not have rules in place to adequately protect coho salmon habitat. Commenters believe that the FPA does not provide for the production and introduction of necessary large woody debris to medium, small, and non-fish bearing streams and that any required buffers under the rules are inadequate to prevent significant stream warming.

One commenter cited a white paper[13] analyzing the proposed Oregon and California Railroad Grant Land Trust, Conservation, and Jobs Act as evidence of the need for more stringent programs to protect water quality in Oregon's coastal zone. A commenter raised a concern that even where narrow buffer zones exist along river shores there are areas where those buffers have been eliminated. The commenter also claimed that the Board of Forestry has not shown any intent to provide riparian protection for non-fish bearing streams, which make up the majority of coastal stream miles and flow into fish bearing streams.

Another comment letter discussed how restoring and maintaining productive aquatic habitat does not appear to be a commonly stated objective of Oregon programs that influence the management and use of riparian areas. That commenter went on to say that riparian corridors, managed according to Oregon's rules, have been significantly degraded across large portions of the state's landscape. Other comment letters pointed to the RipStream study findings as evidence that the existing FPA buffers do not achieve compliance with water quality standards and the Clean Water Act.

Other comment letters focused on other weaknesses in Oregon's existing FPA rules, such as the rules not protecting non-perennial (intermittent) streams, which are determined "by the State Forester based on a reasonable expectation that the stream will not have summer surface flow after July 15." The commenter also raised issue with the lack of required riparian management for seeps and springs.

A few comment letters believe Oregon's existing Forest Practices Act and rules, combined with its voluntary efforts, are adequate to protect forest riparian areas. One letter stated the Forest Practices Act and rules do provide the minimum requirement for developing large mature trees that can contribute woody debris to streams. The letter also asserted that voluntary efforts, such as discretionary placement of additional wood in the stream, help to further create large wood debris habitat that salmon need. In addition, the letter discussed other new voluntary practices that are being implemented among the forest industry, such as the retention of additional leave trees in near-stream areas, and targeted restoration of high-priority riparian areas that lack woody debris.

These commenters cited results from several recent Watershed Research Cooperative (WRC) studies to support their position that Oregon's existing forest riparian management is adequate. For example, they state that that two of the three WRC studies indicate a positive fish response following timber harvest. They also note that the Hinkle Creek WRC study found that small debris provides shade to non-fish bearing streams.

In addition, a couple of comment letters criticized NOAA and EPA for relying on much older studies, such as ODF's 2011 RipStream study and the 2002 ODF and DEQ Sufficiency Analysis, to support the federal agencies' claim that Oregon needs greater protection of its small and medium fish-bearing streams and non-fish bearing streams. The letters stated NOAA and EPA should have considered newer, more relevant research, such as the WRC studies. In addition, one comment letter felt NOAA and EPA misinterpreted the RipStream study findings. The commenter believes NOAA and EPA's description of the study's findings on page 8 in the proposed findings document does not align with the actual conclusions of the report. They stated that the new RipStream findings[14] show a wide range of

[13] Oregon Wild. 2012. "Problems and Pitfalls of the Proposed O&C Trust, Conservation, and Jobs Act." http://www.oregonwild.org/oregon_forests/old_growth_protection/westside-forests/western-oregon-s-patchwork-public-lands/O-C_Trust_Act_White_Paper_FINAL_6-5-2012_w_DeFazio_response.pdf

[14] Groom, J.D., L. Dent, and L.J. Madsen. "Response of Western Oregon Stream Temperatures to Contemporary Forest Management," Forest Ecology and Management, 262.8 (2011): 1618-1629.

responses (small increases, small decreases) in stream temperature that are orders of magnitude less than responses upon which conditional approval was based.

One comment letter also reflected that the criticism of the existing FPA rules should be tempered against the evolving science and understanding of forest riparian management. They cite how former beliefs that stream cleaning (large wood removal) was needed to improve instream fish habitat and increase dissolved oxygen, has now evolved to an understanding that large woody debris is needed to achieve these goals. In addition, the commenter states that while there used to be an emphasis on retaining large conifers along streams, that thinking has now shifted to reflect a new understanding of the benefits of riparian hardwoods and the importance of diversity in tree species within the riparian zone.

A comment also cited one study that stated that annual variation in non-forestry disturbances causes greater temperature changes than forestry harvests and that these disturbances and variations stimulate trout and salmon population productivity.[15]

Response: NOAA and EPA continue to find that Oregon needs to do more to protect riparian areas along small and medium fish-bearing streams and non-fish bearing streams. As discussed in more detail in the findings document for Oregon's Coastal Nonpoint Program, there is a wealth of science, including the 2011 RipStream study, which shows that Oregon's existing FPA riparian protection practices on private forest lands in the Oregon Coast Range, are not sufficient to meet the cold water protection criteria for the state's temperature water quality standards.

The EPA and NOAA appreciate the effort that has gone into conducting the paired watershed studies under the WRC. As NOAA and EPA discuss more fully in the findings document, NOAA and EPA's review of the WRC studies found that the variation in stream temperature and the net decrease in stream temperature observed by the WRC studies downstream of harvest sites may be attributable to factors outside of the scope of those studies (such as increased slash debris along the stream after harvest and increased stream flow post-harvest). DEQ also evaluated the WRC study results and concluded that the stream temperature responses observed downstream of the Hinkle Creek and Alsea River harvest sites are similar to the downstream temperature responses observed under the RipStream study.[16] Therefore, as stated in the decision document, there may be other factors at play that make it difficult to draw any definitive conclusions about the adequacy of the FPA practices from the WRC paired watershed study results.

NOAA and EPA do not believe the federal agencies have misinterpreted the RipStream study in the proposed findings document. In the proposed findings, NOAA and EPA stated:

> "A significant body of science, including: 1) the Oregon Department of Forestry's (ODF) Riparian and Stream Temperature Effectiveness Monitoring Project (RipStream)…continues to document the need for greater riparian protection around small and medium streams and non-fish bearing streams in Oregon. In its July 1, 2013, submission to the federal agencies, Oregon cited the

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Groom, J.D., L. Dent, and L.J. Madsen. "Stream temperature change detection for state and private forests in the Oregon Coast Range," Water Resources Research, 47.1 (2011). Accessed November 27, 2013. doi:10.1029/2009WR009061.

[15] Ice, G.G. and S.H. Schoenholtz. 2003. Understanding how extremes influence water quality: Experiences from forest watersheds. *Hydrologic Science and Technology* 19(1-4):403-420.

[16] Seeds, J., Mitchie, R., Foster, E., and D. Jepsen. 2014. "Responses to Questions/Concerns Raised by Oregon Forestry Industries Council Regarding the Protecting Cold Water Criterion of Oregon's Temperature Water Quality Standard," Oregon Department of Environmental Quality and Oregon Department of Fish and Wildlife Memo. June 19, 2014

RipStream study and acknowledged that there was evidence that forest practices conducted under the State's existing Forest Practices Act (FPA) rules do not ensure forest operations meet the State water quality standards for protecting cold water in small and medium fish bearing streams."

While NOAA and EPA did not specify which RipStream study they were referring to in the body of the proposed findings, the References section at the end of the document does provide the full citation for the three RipStream studies, one published in 2008 and two published in 2011. These RipStream studies assessed how the FPA's existing riparian protection practices affected stream temperature. In their RipStream publication, Groom et al. (2011a) found that there was a "40.1% probability that a preharvest to postharvest comparison of 2 years of data will detect a temperature increase of >0.3 ºC". The state's protecting cold water criteria says that water temperatures cannot increase more than 0.3 ºC. Therefore, the researchers concluded that protected cold water compliance may be a problem on private forestry lands in the Oregon Coast Range."[17]

The statements NOAA and EPA made in the proposed findings document about the RipStream study align with this conclusion. To address any apparent confusion regarding the federal agencies' interpretation of the RipStream study, NOAA and EPA have revised the final findings for Oregon's Coastal Nonpoint Program to further clarify the discussion of the RipStream study to include in-text citations for the RipStream studies and to provide a more in-depth discussion of the study's results.

NOAA and EPA agree that the science around riparian buffer protection is evolving, but the recommendations in the IMST Forest Report and the Sufficiency Analysis—notwithstanding the passage of more than a dozen years—as well as the findings in the RipStream study, continue to provide valid support to demonstrate the need for additional management measures applicable to forestry and forested lands to achieve and maintain water quality standards. NOAA and EPA continue to welcome and support scientifically rigorous studies to evaluate the effectiveness of forest practices designed to protect water quality and designated uses. The federal agencies are also committed to investigating alternative approaches that will provide greater protection, when warranted. The fact that science will continue to evolve should not prevent Oregon from taking action to provide better riparian protection when the current science clearly shows that the state's existing FPA practices are not meeting the protection of cold water criterion for the temperature standard. Employing a nimble adaptive management approach that allows the state to make adjustments and to identify when additional management measures are needed based on current science, is a core component of a state's coastal nonpoint program (See Section 6217(b)).

As a few commenters noted, Oregon's riparian protection standards for small and medium fish-bearing streams and non-fish bearing streams are not as strong as those for neighboring states like Washington and California. CZARA gives states the flexibility to develop a program that best meets their unique needs. Therefore, while Oregon does not have to adopt the same standards as its neighbors, NOAA and EPA encourage Oregon to look to Washington and California as potential models for the types of riparian protection practices it may wish to consider. These practices have already been instituted by the forest industry in Washington and California which have had to contend with similar topographies, weather conditions, and sensitive species.

[17] Groom, J.D., L. Dent, and L.J. Madsen. 2011. Stream temperature change detection for state and private forests in the Oregon Coast Range. *Water Resources Research* 47: W01501, doi:10.1029/2009WR009061.

Regarding the comment about annual variation in weather and non-forestry disturbances, the comment does not suggest that temperature changes due to forest harvests stimulate fish populations, and does not suggest that forest harvests do not require additional management measures to reduce adverse impacts on in-stream temperatures. Moreover, the comment does not suggest that forestry-related activities do not exacerbate adverse temperature effects attributable to the non-forestry disturbances identified as significant in the comment. While NOAA and EPA recognize that natural disturbances can cause water quality perturbations, previously discussed studies show there is a need for greater riparian protection around small and medium streams and non-fish bearing streams in Oregon to protect against temperature increases from forest harvest activities.

Finally, NOAA and EPA note that one commenter expressed concern that in some areas, even Oregon's current FPA buffer requirements were not being followed. Whether or not that is the case, that is an enforcement issue. Under CZARA, how well a state is enforcing its existing policies and programs is not considered for coastal nonpoint program approval. (See the response to Section VI.C, Enforcement, for a fuller explanation).

G. Greater Protection of Forestry Riparian Areas Needed

Comment: Several comment letters stated that Oregon needs to provide greater protection for forest riparian areas along both fish and non-fish bearing streams. One letter provided several examples of recommended buffer widths that the state may wish to adopt. For example, they mentioned that the National Marine Fishers Service recommends no-cut riparian buffers ranging from 150 to 300 feet in width to protect salmonids. The larger buffer widths are for fish-bearing streams, while the smaller widths are more suitable for non-fish bearing streams. The commenter also stated the Northwest Forest Plan recommends similar buffer widths (300 foot no-cut buffers along fish-bearing streams and 150 foot no-cut buffers along non-fish bearing streams). The comment letters stated that wider riparian buffers would ensure large wood recruitment, improve sediment and pesticide filtration, and provide sufficient tree basal area within the riparian zone to shade streams and protect cold water needed for salmon. As one comment letter also asserted, the larger buffers would also provide greater protection from blow downs and ensure that if a few trees are blown down, enough would remain to still provide a functioning buffer.

In addition to greater protection of forestry riparian areas, commenters stated that riparian restoration was needed. They highlighted the important role large downed trees, or nurse trees, play in forest regeneration.

One comment letter did express concern with adopting riparian buffers similar to the Northwest Forest Plan. The letter stated that when the Bureau of Land Management adopted the plan's buffers, it limited the amount of timber that could be harvested. The new buffer requirements necessitated three landings and two more harvest units to harvest the same amount of timber that used to be done with one landing. The letter concluded that more restrictive riparian buffers can lead to greater ground disturbance.

Response: NOAA and EPA agree that Oregon needs to do more to protect riparian areas along small and medium fish-bearing streams and non-fish bearing streams. In the final findings document, the federal agencies acknowledge the Board of Forestry's ongoing rulemaking process that is considering improvements to the FPA riparian protections for small and medium fish-bearing streams. This rule may

help the state provide some of the protection needed. NOAA and EPA encourage the state to complete those rule changes as expeditiously as possible.

NOAA and EPA appreciate the recommended buffer widths commenters provided and will be sure to share these suggestions with the state for its consideration. CZARA does not require states to adopt specific buffer widths to have a fully approved coastal nonpoint program. Rather, the state has the flexibility to identify the type of buffer protection that works to enable achievement and maintenance of water quality standards. NOAA and EPA continue to work with Oregon to make sure the state has programs and processes in place to provide the riparian protection needed.

With regard to the comment about greater ground disturbance resulting from the application of Northwest Forest Plan buffers, NOAA and EPA refer to the most recent report by the Northwest Forest Plan Aquatic Riparian Effectiveness Monitoring Program.[18] That report finds that 69 percent of watersheds are demonstrating a positive change in condition, and that almost all negative watershed condition scores within the Plan area are associated with fire (not harvest).

Finally, EPA and NOAA are supportive of Oregon's efforts under the Oregon Watershed Enhancement Board and other programs to restore forested riparian areas through voluntary activities and other means. The federal agencies believe these voluntary measures will complement and augment a fully approvable coastal nonpoint program.

H. Impacts of Strict Forestry Riparian Protection

Comment: A couple of comment letters expressed concern about the impacts stricter riparian management would have on forestry operations. One letter felt requirements for larger riparian buffer widths would only hurt the logging industry and drive up the price of lumber. Another comment letter believed that any EPA and NOAA-proposed restrictions would limit the ability of private forest landowners to invest in watershed restoration efforts, including enhancements to forestry riparian areas. The commenter felt additional restrictions would smother the forest sector's cooperative stewardship ethic and long history of voluntarily adopting good riparian management and other forest stewardship practices.

Response: NOAA and EPA recognize that wider no-cut riparian buffer requirements and strengthening other riparian management practices may reduce the number of harvestable trees available to the timber industry in Oregon, and that this may have an impact on individual landowners. The agencies note that many of the timber companies currently operating in Oregon are also successfully operating in Washington and California—states that have stronger riparian protection requirements in place. The timber industry in those states is complying with stricter riparian protection requirements, and in some cases exceeding those requirements by adopting additional voluntary practices and working with partners on watershed restoration activities.

[18] Lanigan, S. H., Gordon, S. N., Eldred, P., Isley, M., Wilcox, S., Moyer, C., Andersen, H. 2012. Northwest Forest Plan-the first 15 years (1994-2008): Watershed Condition Status and Trend. Gen. Tech. Rep. PNW-GTR-856. Portland, OR: U.S. Department of Agriculture, Forest Service, Pacific Northwest Research Station. 155 p.

I. Flexibility for Forestry Riparian Management Needed, Including Use of Voluntary, Incentive-Based Approaches

Comment: Rather than relying on strict regulatory approaches to better protect riparian areas on forest land, a few comment letters advocated for more flexible, voluntary, and incentive-based approaches. To illustrate this point, one comment letter stated that the three sites with the highest increases in water temperature in the RipStream study could be addressed through minor operational adjustments and do not support sweeping adjustments. The commenters recognized more could be done to protect riparian buffers, and thus water quality, salmon and other designated uses. However, they felt additional incentive-based approaches, combined with the existing Forest Practices Act rules, would be the best way to provide these additional protections and facilitate long-term wood recruitment and shade to support high-quality salmon habitat. Voluntary practices they recommended included the retention of additional leave trees near fish-bearing streams, the placement of large woody debris in streams, tree planting and other riparian restoration activities, as well as riparian forest thinning to levels that promote primary production in streams and the adjacent understory (primary production being important for salmon populations).

Response: NOAA and EPA understand and respect the need for states to be able to use flexible approaches in developing and implementing their coastal nonpoint programs. CZARA requires management measures to be backed by enforceable authorities. As NOAA and EPA describe in the *1998 Final Administrative Changes to the Coastal Nonpoint Pollution Control Program Guidance for Section 6217 of the Coastal Zone Act Reauthorization Amendments of 1990,*[19] this can either be through direct enforcement authority or through voluntary efforts, backed by enforceable authorities. If states choose a voluntary approach, as the guidance outlines, states not only must provide a description of their voluntary programs but also meet other requirements including: (1) provide a legal opinion stating they have suitable back-up authorities and demonstrate a commitment to use the back-up authority, when necessary; and (2) have a program in place to monitor and track implementation of the voluntary program. Voluntary programs could play an important role in Oregon's Coastal Nonpoint Program. However, the state has not fully described its voluntary programs for forestry riparian protection or satisfied the other requirements needed to use voluntary programs to meet part of their CZARA 6217(g) management measure requirements.

J. Forestry Landslide Management

Comment: Some comment letters acknowledged that landslides caused by logging practices, such as clear cutting on steep slopes, are a real problem in Oregon and additional management measures are necessary to address these impacts. They noted that Oregon does not have sufficient programs to reduce landslide risk and control nonpoint pollution due to logging on private lands.

Others expressed their disagreement with the federal agencies' proposed finding and argued that the evidence provided by the federal entities was misleading and only focused on "landslide density relationships" rather than consider the "total number of landslides triggered during major storms." They suggested that if the federal agencies were to focus on the latter, then the "potential increases in sediment delivery to public resources from landslides...is proportionally small". Another comment letter disagreed with the federal agencies scientific claims correlating harvesting activities with landslide rates and argues that research shows "a significant dependence on geological setting, storm size event, and

[19] http://coastalmanagement.noaa.gov/nonpoint/docs/6217adminchanges.pdf

other non-human factors." They cited a three-year wet-weather haul study the State completed in 1999 to support this claim and believed that the State responded appropriately to the study's findings by adopting rule changes in 2003 to address landslide-prone areas. One comment letter recommended that EPA consider a broader scale view over longer timeframes to evaluate whether water quality and designated uses are impaired. In addition, the commenter argued that EPA has not offered objective evidence that additional management measures are needed to maintain water quality, or that landslides resulting from forest management activities have caused exceedances in water quality or negatively impacted aquatic life. Another comment letter also stated that the agencies did not indicate which water quality standards necessitate additional management measures for landslide prone areas but they presumed sedimentation. In addition, a commenter noted that landslides are a natural phenomenon and play an important role in providing added stream complexity that can benefit salmon.

Finally, a comment letter noted that Oregon has made numerous improvements in this forest practices over the years to minimize risk from landslide prone areas, demonstrating that the State has met the CZARA requirement for additional forestry management measures related to landslides.

Response: NOAA and EPA recognize that landslides do occur naturally and can provide additional stream complexity and that the State has made some improvements in how it manages forestry activities to reduce landslide risk especially for public safety. NOAA and EPA note that the State did establish rules in 2003 to address shallow, rapidly moving landslides for public safety. However, as described more fully in the decision document, NOAA and EPA continue to find that Oregon needs to do more to protect high-risk landslide areas from logging activities to ensure water quality and designated uses are not impaired. Based on the comments received, NOAA and EPA have revised the rationale in the findings document to provide more specific scientific evidence to show the link between timber harvesting and landslide risk and how landslides increase sediment loads to nearby streams which can negatively impact designated uses. These changes were made to clearly reflect that additional management measures for high-risk landslide prone areas are needed to help ensure water quality standards for sediment are achieved and maintained and protect designated uses for aquatic life, including sensitive life stages of salmonids.

NOAA and EPA do not believe that a wider landscape-scale approach to assessing landslide impacts would be appropriate. While the effects of a single landslide may be diluted when a landscape scale view is taken, the impact to a specific stream reach (or reaches) and the designated uses of that stream are real and can be significant. It is important to capture and consider these impacts when planning harvest activities so that landslide risks that can impair waterbodies can be minimized.

K. Forestry Road Management

Comment: Several comment letters were concerned about Oregon's inadequate practices to control polluted runoff from forest roads. Examples of negative impacts of logging roads to the watershed and habitat were noted by various commenters. One letter noted that existing rules for forest roads are vague and prioritize logging over water quality protection.

For example, they claimed Oregon's road location rule is not sufficient, stating that the rule only requires operators to minimize risk to streams rather than avoid water quality problems. Commenters also raised concern about road-related rules not being designed to eliminate delivery of fine sediment, or to ensure that sediment delivery does not impair water quality. Commenters also stated that the rules do not require existing, inactive logging roads or "legacy roads" be brought into compliance with water quality standards.

Another letter made the argument that while NOAA and EPA have expressed their concerns about forest roads delivering sediment into streams and have requested that the State enact an inventory and reporting program for forest roads, the federal agencies have not cited any sources supporting these concerns and have presented no basis for the request. The comment states that Washington State was not required to gather information on legacy roads to demonstrate to that coastal water quality and habitat have improved as a result of Washington's coastal nonpoint program. The letter contended that the 2002-2003 changes to the FPA rules to better address forest roads, as well as success under the Oregon Plan for Salmon and Watersheds that were detailed in the State's submission and are evidence that the Oregon Forest Practices Act is working as it should. The commenter stated that the Board of Forestry is committed to implementing additional management measures for forestry roads as needed. The commenter also noted that salmon stocks are recovering.

Response: As discussed more fully in the final findings document, NOAA and EPA continue to maintain that while the State has made some improvements to its management of forestry roads, the 2002-2003 FPA rule changes and voluntary measures are not sufficient to provide the protection needed to prevent water quality and designated use impairments. NOAA and EPA are also concerned that the FPA rules do not address legacy road issues or general maintenance issues for existing roads when construction or reconstruction activities do not trigger the FPA rules. The findings document also explains that while Oregon's voluntary efforts may have some promise, the State has not satisfied the CZARA requirements to use voluntary programs, backed by enforceable authorities, to support this additional management measure. Based on the comments received, NOAA and EPA revised the final findings document to ensure statements made were supported by scientific literature.

In reference to the Washington State program, NOAA and EPA did not include an approval condition directing Washington to gather information on legacy roads because under WAC 222-24-052 (Road Maintenance), land owners already need to conduct an inventory and assessment of the risk to public resources or public safety as part of the road maintenance and abandonment plan. That inventory requirement must identify what Washington State defines as "orphaned" roads which would be comparable to "legacy" roads in Oregon.

L. Impacts of Forestry Pesticide Application on Human Health, Drinking Water, and the Environment

Comment: Many comment letters voiced concerns about the short and long-term impacts of pesticide and herbicide use associated with the forest industry in Oregon, especially using aerial spraying as a method of applying these chemicals. These commenters believe that Oregon coastal watersheds are not adequately protected from the use of these chemicals. Commenters raised concerns about the adverse impacts to drinking water, human health, salmon, amphibian and crayfish habitat, water quality, and property values. One comment letter stated amphibians are particularly vulnerable because they have moist, permeable skin and unshelled eggs that are directly exposed to soil and water that could be contaminated with pesticides. Another letter discussed how certain chemical properties of herbicides allow them to persist in the environment and to eventually be carried downstream to adversely impact aquatic life such as fish. They stated that pesticides and herbicides, like atrazine, can bind to soil particles and then wash into waterways through surface runoff, sediment erosion, or groundwater transport. Another letter noted that is of particular concern because, in Oregon, it is legal to spray herbicides, like atrazine, over dry channels which can be transported downstream after rain events and potentially harm fish.

A comment letter also stated that not enough is known about the interactions of various pesticides and herbicides chemicals when mixed. The letter noted that synergistic effects of unknown components of pesticides could inhibit immune responses and pose long-term unknown issues.

Several commenter letters cited specific studies or personal observations to support their statements. For example, one commenter stated one finding of the report, *Oregon's Industrial Forests and Herbicide Use: A Case Study of Risk to People, Drinking Water and Salmon*, that concluded there are known endocrine disrupting chemicals entering Oregon's drinking water sources and fish-bearing streams.

Other comment letters described acute health impacts (e.g., headaches, breathing issues) immediately following spray events and more long-term health issues attributed to pesticide exposure. One commenter reported that the household's drinking water system tested positive for glyphosate while another commenter, from the Triangle Lake area, stated that his urine and blood tested positive for 2,4-D and atrazine metabolites. Another letter also relayed how people in Western Lane County were found to have low levels of insecticides in their blood. In the Triangle Lake area, a comment letter stated that pesticide application records showed that over 20 tons of pesticides were applied in a three-year period. Commenters also reported seeing dead fish in streams after spray events and said that chemicals used in forest practices have been found in local streams.

Response: EPA and NOAA recognize that pesticides, including herbicides, are being observed in some drinking water and stream samples in coastal Oregon and that citizens are concerned about adverse public health and environmental impacts due to pesticide exposure. NOAA and EPA believe additional research and monitoring is needed to understand the potential impacts of pesticide use in Oregon's coastal areas. The final decision document for Oregon's Coastal Nonpoint Program recommends that Oregon continue to strengthen and expand its forestry pesticide monitoring efforts, especially within the coastal nonpoint program area. NOAA and EPA encourage Oregon to develop these more robust monitoring protocols in consultation with EPA and NOAA's National Marine Fisheries Service so that sound methodologies are selected to assess potential impacts to water quality and designated uses.

M. Adequacy of Current Forestry Pesticide Management Practices for Protecting Water Quality and Designated Uses

Comment: Many comment letters expressed concern that Oregon does not have adequate management practices in place for the application of pesticides, including herbicides, by the forest industry to protect water quality and designated uses. They cited specific studies and personal experiences of pesticide exposure to illustrate that current practices led to pesticide impacts to human health and the environment. (See summary comment VI.A, Impacts of Forestry Pesticide Application, above.)

Commenters asserted that Oregon does not have an effective pesticide management program to protect groundwater and drinking water. Many comment letters focused on the inadequate spray buffers for pesticide application. For example, commenters asserted that Oregon's existing spray buffers for the aerial application of pesticides, including the 60 foot no-spray buffer around fish-bearing streams, are ineffective at protecting water quality and designated uses, including drinking water; the 60 foot buffer is too small and non-fish bearing streams are not protected at all. One commenter described that he observed narrow or non-existent buffers along streams that flow into the Siletz River where there are clear cuts to the banks and aerial spraying occurring over the cuts.

Several comment letters noted that Oregon's spray buffer requirements, and many other pesticide management practices, were not as protective as requirements set by neighboring states. Commenters felt Oregon needed larger spray buffers around waterbodies for the aerial application of pesticides and herbicides. One comment letter also suggested a pesticide-free buffer was needed around certain land uses, such as schools. Another letter was concerned that herbicide spraying was allowed to occur in Lane County despite protection zone language and the efforts of the Water District to prevent application over the Clean Lake watershed (a drinking water watershed). Another comment letter asserted that additional research is needed to determine if aerial spraying of herbicides by the forest industry is a necessary method of application.

Commenters did not feel Oregon's existing spray buffers were large enough to protect against aerial drift, which they asserted was a common occurrence given the microclimates of the Oregon Coast Range. Commenters were concerned that aerial drift of pesticides from the application site could impact nearby organic farms, vineyard owners, natural forest land owners, members of the community, streams, and drinking water sources. One comment letter stated that although the Oregon Health Authority acknowledges that aerial drift can carry pesticides two to four miles from the application site, there is no monitoring of pesticide drift after application. Another letter noted that glyphosate was detected in Jetty Creek, illustrating that legal spray buffers were not protective enough. One comment letter suggested that EPA should require ODF, in consultation with DEQ, to exercise authority to review comments and require modifications of the written forest vegetation management plans when needed. A letter also stated that additional management measures were needed to provide increased protection for both fish and non-fish bearing streams during the aerial application of herbicides.

However, other comment letters contended that Oregon's existing forestry pesticide management practices are adequate. The letters stated that pesticide applicators must be licensed and, along with landowners, are already subject to stringent regulations and guidelines under the FPA and FIFRA. One commenter also noted that ODF has developed guidelines to provide further assistance implementing the FPA rules, including Forest Practice Rule Guidance for Chemical and Other Petroleum Products (2009). A comment letter also asserted that practices for the aerial application of pesticides have changed since 1998; specifically ultra-course sprayers are now used to reduce drift. The comment believed that given these changes, NOAA and EPA's data is old and does not support the need for an additional management measure for the aerial application of herbicides.

A few comment letters asserted that EPA label requirements under FIFRA were sufficient. A commenter also noted that EPA has not revised the pesticide labels to reflect the restrictions that NOAA National Marine Fisheries Services' biological opinion on the pesticide labels and says that revising the labels are necessary to protect ESA-listed salmon.

One comment letter stated that water quality monitoring activities for non-fish bearing streams during and after spraying herbicides has shown no detrimental impacts to water quality. Comment letters cited several studies by ODF,[20] the U.S. Geological Survey,[21] and the Trask paired watershed study[22] that although low levels of pesticides were detected in some stream or drinking water samples, the levels

[20] Dent L. and J. Robben. 2000. *Oregon Department of Forestry: Aerial Pesticide Application Monitoring Final Report*. Oregon Department of Forestry, Pesticides Monitoring Program. Technical Report 7. March 2000.
[21] Kelly, V.J., C.W. Anderson, and K. Morgenstern. 2012. USGS and Eugene Water and Electric Board. Reconnaissance of Land-Use Sources of Pesticides in Drinking water, McKenzie River Basin, Oregon. Scientific Investigations Report 2012-5091
[22] National Council for Air and Stream Improvement. 2013. *Measurement of Glyphosate, Imazapyr, Sulfometuron methyl, and Mmetfulfuron methyl in Needle Branch Streamwater*. Special Report No. 130-1.

were below toxicity thresholds for human health and aquatic life. A commenter also stated that Oregon continues to monitor for over 100 pesticides, which allows the state to identify potential problems with the aerial application of herbicides, if any arise.

Response: NOAA and EPA recognize there are concerns about the adequacy of Oregon's current spray buffers for pesticides and other pesticide management practices. Under this CZARA action, NOAA and EPA are only looking at the adequacy of the state's protective measures for Type N (non-fish bearing streams) during the aerial application of herbicides. The findings document discusses recent (post-1998) scientific studies that support the need for additional management measures for the aerial application of herbicides to maintain water quality standards and protect designated uses. The findings document also acknowledges the studies commenters cited (ODF, USGS, and Trask paired-watershed) and discusses why the results from these studies are how these studies evaluated a variety of matters, but were not focused on impacts to nonfish bearing streams from aerial application of herbicides for forestry and do not provide sufficient evidence that aerial application do not threaten designated uses. In addition, the findings document lists several steps the state could take to provide better protection for these non-fish bearing streams.

Oregon and other Pacific Northwest states have recognized the need to go beyond the national FIFRA label requirements to protect water quality and designated uses, including salmon, in their state.[23] Other Pacific Northwest states have established more stringent forestry spray buffer requirements for herbicides along non-fish bearing streams. Some examples of spray buffers for non-fish bearing streams in neighboring states are included in the findings document.

N. Inadequate Notification and Transparency by Forestry Industry When Pesticides Are Used

Comment: Several comment letters expressed concern about the poor notification procedures and lack of transparency related to the aerial application of pesticides. For example, one letter described an instance where aerial spraying occurred without warning. Commenters stated that the public is not informed of the exact date when spraying will occur and, instead, are only provided with a six-month window of when spraying may occur. Commenters also asserted that the notification requirements were vague and that pesticide application records were not available to the public. One comment letter stated that application records are only available from the State Forester when requested. Another letter stated that the Oregon Forest Practices Act prohibits researchers, doctors, and the public from obtaining accurate information about the types and quantities of herbicides that are sprayed.

Response: NOAA and EPA recognize the commenters' concerns on notification requirements for pesticide application under Oregon's Forest Practices Act. NOAA and EPA have recommended that Oregon revise the ODF Notification of Operation form required prior to chemical applications on forestlands to include for aerial applicators to indicate they must adhere to FIFRA labels for all stream types, including non-fish bearing streams.

O. Inadequate Forestry Pesticide Monitoring

Comment: In addition to their general concern about pesticide use by the forest industry and inadequate spray buffers when pesticides are applied, several comment letters expressed concern about the adequacy of Oregon's water quality monitoring efforts following aerial application of pesticides and

[23] Peterson, E. 2011. Memo to Scott Downey, EPA and David Powers, EPA RE: *Comparative Characterization of Pacific Northwest Forestry Requirements for Aerial Application of Pesticides.* Environmental Protection Agency, August 30, 2011.

herbicides on forestry lands. One letter stated that Oregon has no program to determine the presence of forestry pesticides in the air that, result in drift and deposition onto surface waters and soils. Commenters also gave many examples of how they believe drinking water, human health, and fish and wildlife have been impaired by aerial spraying.

One comment letter noted without effective monitoring protocols, the state lacks data to prove aerial application is a problem and that improvements were needed. Another comment letter stated there was no monitoring of aerial drift even though the Oregon Health Administration said chemicals could drift two to four miles. A letter also noted there was little to no coordination between DEQ and ODF on pesticide monitoring. A few comment letter questioned NOAA and EPA's praise of Oregon's Water Quality Pesticide Management Plan. The letters noted that while the state purportedly uses water monitoring data to develop adaptive management approaches, the state actually undertakes very little pesticide monitoring and that there is no evidence the state collects any data in coastal watersheds.

It was pointed out that while NOAA and EPA found state-level frameworks and actions sufficient for addressing pesticide water quality controls, none of the pilot monitoring programs supporting this finding occur in the coastal zone. A commenter also added that the agencies "improperly assume that, should riparian buffer standards for Type N streams and monitoring programs within the coastal zone adhere to existing state laws and programs concerning water quality and pesticides, then Oregon's CNPCP would warrant approval." The commenter contended that existing state and federal laws do not sufficiently address a large portion of pesticide application activities and do not collect necessary pesticide application and risk data. Referring to Oregon's Water Quality Pesticide Management Plan, which has a component that relies on monitoring data, a commenter noted that the state does little monitoring of pesticides and there is no indication of data being collected in coastal watersheds. A commenter also expressed concern with the lack of timely coordination between DEQ and ODF on pesticide monitoring.

However, other commenters noted that the Board of Forestry specifically requires effectiveness monitoring and evaluation of the chemical rules which lay out how applicators should use pesticides. They state the rules are designed to ensure chemicals do not occur in soil, air, or waters in quantities injurious to water quality or the overall maintenance of terrestrial or aquatic life. A commenter also noted that that state has established pesticides from forest practices as a low priority in the EPA-approved Water Quality Pesticide Management Plan because pesticide monitoring for forestland has shown that pesticide concentrations are below the lowest benchmarks provided by EPA.

Response: In order to employ an effective adaptive management approach to pesticide use, as Oregon has proposed, it is important for the State to have a robust pesticide monitoring and tracking program in place that includes timely sampling (e.g., right after aerial application) and monitoring sites throughout the coastal nonpoint area. Although some monitoring studies have not found herbicides at harmful levels, as discussed more fully in the final decision document, none of these studies were focused on impacts to non-fish bearing streams in the coastal nonpoint management area. There are insufficient studies to conclude that herbicides do not occur at harmful levels from aerially applied herbicides on coastal non-fish bearing streams. NOAA and EPA believe Oregon would benefit from improved pesticide monitoring, especially expanding its pilot Pesticide Stewardship Program to include additional sites within the coastal nonpoint management area.

P. Forestry Clear Cuts

Comment: Comment letter expressed concerns with the amount of clear cutting that occurs in Oregon. Commenters disagreed with the FPA rule which allows up to 120 acres of forest to be clear cut and stated that the rule did not consider the cumulative impacts of multiple clear cuts. Commenters described how clear cutting impacts water quality. They noted that clear cutting leads to increased sediment runoff and is typically followed by pesticide and herbicide applications that also runoff to nearby waterways. They noted that increased sediment loads lead to the loss of fish spawning habitat and that toxics from pesticides and herbicides can also impact aquatic and human health. Commenters reflected that Oregon's lack of riparian buffers made the impacts of clear cutting greater since adequate buffers were not left to help filter sediment and pesticides from runoff before reaching waterways. In addition, commenters are concerned with clear cutting on steep, erosional slopes, which contributes to landslide problems and further impacts water quality. One comment letter argued that clear cutting is not sustainable and Oregon needs to practice sustainable forestry. Commenters provided examples of clear cutting in Oregon's coastal area such as: extensive clear cutting in riparian areas, including waterways that provide drinking water; clear cutting on steep slopes with erosive soils; and clear cutting occurred in areas within designated spotted owl sites and high-risk areas.

Response: NOAA and EPA recognize that clear cutting, if not managed well, can have adverse impacts to water quality and designated uses. That is why NOAA and EPA placed a condition to develop additional management measures for forestry on Oregon's program that specifically require the state to provide greater protection of riparian buffers around small and medium fish-bearing streams and non-fish bearing streams, for the protection of high-risk landslide areas, and greater riparian protections during the aerial application of herbicides along non-fish bearing streams. These additional management measures will help protect water quality and designated uses from the impacts of clear cutting. The state has failed to address these additional management requirements to date. Therefore, NOAA and EPA find that the state has failed to submit a fully approvable coastal nonpoint program under CZARA. The final findings document recommends actions Oregon can take to address these additional management measure requirements and thus help protect coastal water quality from adverse impacts associated with clear cutting.

X. AGRICULTURE

Note: NOAA and EPA invited public comment on the adequacy of Oregon's programs and policies for meeting the 6217(g) agriculture management measures and conditions placed on Oregon's coastal Nonpoint Program. The invitation was provided because NOAA and EPA received expressed concerns that water quality impairments from agricultural activities within the coastal nonpoint management area are widespread and that the State's programs and policies may not adequately meet the 6217(g) management measures for agriculture to protect coastal waters. NOAA's National Marine Fisheries Services' (NMFS) recent listings for coho salmon and draft recovery plans also found that insufficient riparian buffers around agriculture activities are one of the contributors to the salmon decline. These concerns and NMFS's action prompted NOAA and EPA to seek additional information from the public on this issue.

The federal agencies appreciate the comments received and will carefully consider them as the agencies continue to work with Oregon to develop a fully approved coastal nonpoint program. The December 20, 2013, proposed findings did not include a proposed decision on whether or not Oregon had satisfied the

CZARA 6217(g) agriculture management measures. Since the public did not have an opportunity to comment on a specific proposed decision and rationale for that decision, the adequacy of Oregon's agriculture programs is not currently being considered as a basis for the finding that Oregon has failed to submit an approvable coastal nonpoint program. The public will have an opportunity to comment on NOAA and EPA's proposed decision regarding the agriculture management measures at a later date. Below is a summary of comments EPA and NOAA received on Oregon's agricultural programs.

A. Ability of Oregon's Agricultural Programs to Meet CZARA Requirements

Comment: Some comment letters noted that they did not believe Oregon had satisfied the CZARA requirements for Agriculture and the conditions related to the agriculture management measures that NOAA and EPA placed on Oregon's Coastal Nonpoint Program. They noted that Oregon must address impacts caused by polluted runoff from agricultural activities. Various points were made about the inadequacy of the management approaches and programs the state relies on to meet the CZARA requirements (see additional comments related to agriculture below for detailed examples).

Other comment letters felt that the State had satisfied the CZARA agriculture management measure requirements and the conditions placed on its program related to agriculture (see additional comments related to agriculture for detailed examples). They stated that finding otherwise would be unreasonable and contrary to CZARA requirements as it would also hold Oregon to a higher standard than other states. Some commenters also contended that if NOAA and EPA find that the State has not submitted an approvable program for agriculture, that decision would punish the agriculture community; they would lose important federal funding that help reduce polluted runoff from agricultural activities.

Response: See "note" at the beginning of this section.

B. Extent of Nonpoint Source Pollution from Agriculture

Comment: Several comment letters questioned NOAA and EPA's claim in the proposed findings rationale that nonpoint source problems from agriculture are widespread. Commenters stated that agriculture was not the predominant land use within the coastal nonpoint management area. Two different comment letters provided statistics on the extent of agricultural land within the coastal nonpoint management area to support this claim. While they presented slightly different statistics (i.e., agriculture land represents only five percent of land use in the coastal zone with pasture/hay use the predominant land use versus 25 percent of land within the coastal nonpoint program area is agriculture but less than one percent of those agricultural lands are used for activities other than pasture/hay), they arrived at the same conclusion. Given that agricultural land comprises a small overall land area and that most of these agricultural lands are used for pasture or hay, potential water quality impacts from agriculture are reduced since there is little opportunity for soil disturbance or nutrient loading from traditional row crops. They contended that most ambient water quality monitoring reports indicate "fair to excellent water quality" and monitoring sites with poor conditions are not due to agricultural activities.

The same commenters did not feel that NOAA and EPA supported their statement in the proposed findings document that water quality impacts from agriculture are widespread. They found fault with NOAA and EPA's sole reliance on NOAA National Marine Fisheries Services' (NMFS) recent listings for coho salmon and draft recovery plans (both under the Endangered Species Act). One comment letter stated that the draft salmon listings and recovery plan findings are based on opinion and anecdotal

evidence and are unsupported by scientific fact. Therefore, the letter requested that NOAA and EPA's references to the coho salmon listings and recovery plan findings as they relate to agriculture impacts to water quality be removed. Another letter stated that NMFS's listings and plans did not support a conclusion that water quality or designated use impairments due to agriculture are "widespread." For example, the commenter reflected that the NMFS documents do not specify which land use(s) require greater buffers to adequately protect coho salmon.

However, other comment letters noted that polluted runoff from agricultural activities is a significant concern and contributed to water quality degradation. They noted that Oregon must address nonpoint source pollution impacts from agriculture. (See also response to "Effectiveness of Oregon's Agriculture Programs for Achieving Water Quality Standards and Protecting Designated Uses" comment.)

Response: See "note" at the beginning of this section.

C. Effectiveness of Oregon's Agriculture Programs to Achieve Water Quality Standards and Protect Designated Uses

Comment: Several comment letters expressed concern that the approaches Oregon relies on to meet the CZARA agriculture management measure requirements are not sufficient to achieve water quality standards and protect designated uses. Several commenters stated that the Agriculture Water Quality Management Area (AWQMA) rules are too vague to ensure water quality standards are achieved. Another letter believed Oregon's pesticide management practices are inadequate to meet water quality standards. One comment letter stated that ODA publicly acknowledged that even 100 percent landowner compliance with the current AWQMA rules is not sufficient to achieve water quality standards. The commenters concluded that it is important for the state to include agriculture management measures that enable the state to achieve and maintain water quality standards.

Commenters provided several examples of why they believe Oregon's agriculture programs are unable to meet water quality standards and designated uses. One commenter mentioned that Tillamook Bay was closed to shellfish harvesting for 100 days of the year due to polluted runoff from dairy farms. Another commenter stated that Oregon's Water Use Basin Program failed to maintain minimum water flows, which resulted in impairments to water quality and habitat needed for sensitive and endangered species.

Several other comment letters, however, stated that Oregon has developed water quality standards designed to protect designated uses (including coho salmon and other endangered or threatened fish species) and that Oregon's agriculture programs, including the AWQMA Program, are designed to ensure agriculture activities do not prevent the State from achieving those water quality standards and protecting species. One letter cited excerpts from the North Coast Basin AWQMA rule that state: "No person conducting agricultural land management shall cause pollution of any waters of the state or place or cause to be placed any wastes in a location where such wastes are likely to escape or be carried into the waters of the state by any means (ORS 468B.025(1)(a))," and "No person conducting agricultural land management shall discharge any wastes into the waters of the state if the discharge reduces the quality of such waters below the water quality standards establish" (OAR 603-095-0840).

Response: See "note" at the beginning of this section.

D. Effectiveness of the Agriculture Water Quality Management Area Program and Plans for Meeting the CZARA Management Measures

Comment: Several comment letters expressed concern with Oregon's reliance on the Agriculture Water Quality Management Area (AWQMA) Program to meet the CZARA management measures and address polluted runoff. However, other comment letters were supportive of the program and thought it did enable the state to meet its CZARA agriculture requirements.

Commenters who believed the AWQMA Program did not satisfy the CZARA requirements are concerned that the AWQMA plans, which include the CZARA management measures for agriculture in their appendices, are voluntary. One comment letter cited Oregon statute and rules that state: "The rules adopted under this subsection shall constitute the only enforceable aspects of a water quality management plan" (ORS 568.912(1)) and "Area rules are the only enforceable aspect of an AWQMA plan" (OAR 603-090-000(4)). The commenters were concerned that the AWQMA rules, which provide ODA with enforcement authority for the program, do not include specific requirements consistent with the CZARA 6217(g) management measures that adequately protect water quality. They believe the AWQMA Program is not sufficient for meeting CZARA requirements because management measures must be backed by enforceable authority under CZARA. The CZARA management measures in the appendix of the voluntary plans are not enforceable.

A few commenters who participated in AWQMA planning efforts for several different coastal basins cited personal observations that supported their conclusions that the voluntary AWQMA plans lacked specific requirements to adequately protect water quality. One participant described how the Mid-Coast planning team rejected including more specific protections for riparian buffers in the plan even though they were reportedly aware that water quality problems in the basin, such as temperature increases and bacteria contamination from livestock, were created or exacerbated by inadequate riparian vegetation. Another commenter who had experience with the Inland Rogue AWQMA plan stated that what was deemed an inappropriate land use practice was subjective because the plan and rules lacked specific thresholds for what was or was not an inappropriate activity.

One comment letter expressed concern that ODA does not have an implementation plan, with interim milestones and timeline, in place to ensure the voluntary actions in the plans occur. Another comment letter also noted the State's inability to point to significant achievements of the AWQMA Program to improve agricultural land use practices that have caused or contributed to water quality impairments. The commenter believed that since the AWQMA plans and rules have been in place since 2007, the State should have more to show for the program by now if it was actually achieving its goals to protect and improve water quality.

Several other comment letters had a different perspective. They felt that the AWQMA Program does enable Oregon to satisfy the CZARA agriculture management measures and the conditions related to agriculture that NOAA and EPA placed on its coastal nonpoint program. The commenters stated the coastal AWQMA plans directly reference the CZARA management measures and that ODA has the authority to require the CZARA management measures and to impose additional measures, if necessary. They believed the AWQMA plans and rules provide sufficient goals, policies, and authorities, to improve water quality within coastal watersheds. One comment letter contended that the AWQMA plans include many practices that are consistent with (or exceed) the CZARA management measures. For example, the plans and rules ensure animal wastes are placed to avoid impacts to water quality, site capable riparian

vegetation is in place to reduce erosion, strict nutrient limits are established for waterways, and livestock access to waterways is limited to protect water quality and streambanks.

A few comment letters objected to claims by others that the AWQMA plans and rules do not provide specific practices or requirements, such as set buffer widths. They claimed mandating such specific requirements be included in the plans or rules would be applying a "one-size-fits-all" approach which is contrary to the inherent flexibility CZARA affords. One comment letter also stated that neither CZARA nor the 6217(g) guidance prescribes specific agricultural practices through the CZARA management measures.

Some commenters, who included several farmers, described how ODA works with ranchers and farmers to modify, reduce, and remove ineffective agriculture practices. They stated that farmers have worked hard to meet or exceed water quality standards by working with the State to develop AWQMA plans to set watershed goals and prioritize investments to enhance water quality. Farmers noted that they willingly participated in the AWQMA Program and other voluntary programs because they had the understanding that the program and their voluntary efforts would meet all federal and state regulatory requirements for agriculture.

Commenters also noted the success of the state's AWQMA Program and voluntary efforts over the years. For example, one comment letter stated between 1998 and 2012, the Oregon Watershed Enhancement Board (OWEB) contributed nearly $18 million to support coastal agriculture projects and Soil and Water Conservation Districts and landowners provided an additional $5 million in-kind support. These efforts restored over 950 linear stream miles and improved agricultural practices that impacted over 2,750 acres of farmland. In addition, the letter also stated, that landowners voluntarily enrolled thousands of acres of farmland in federal programs designed to improve water quality.

Response: See "note" at the beginning of this section.

E. Need for Oregon's Agriculture Programs to Have a Greater Focus on Prevention Rather than Rely on Addressing Water Quality Impairments After They Occur

Comment: A few comment letters asserted that the AWQMA Program and plans only focused on areas with known water quality impairments. They felt that the AWQMA Program did not provide sufficient protection for more pristine areas to prevent them from becoming degraded. They stated by focusing on impairment rather than protection, ODA is allowing polluting practices to occur for many years until water quality becomes degraded and is documented through a TMDL. Commenters were also concerned that the AWQMA plans do not require restoration, especially pertaining to riparian buffers surrounding former agricultural sites. (*See also discussion under Agriculture-Buffer and Agriculture-Legacy Issues comments.*)

A few other comment letters disagreed with NOAA and EPA's statement in the proposed findings document that AWQMA plans focused primarily on impaired areas. They stated that landowners generally are expected to protect water quality, not just impaired waters. They believe that ODA implements controls through the AWQMA Program to address sources of existing impairments as well as prevent polluted runoff. One comment letter provided a specific example of the North Coast Basin rules (OAR 603-095-0840) to illustrate how the standards address impaired areas as well as provide protection and restoration benefits. Another comment letter felt that ODA was coordinating well with

DEQ to ensure continued integrity of the AWQMA Program and plans and ensure that landowners have the tools and adaptive approach to address polluted runoff.

Response: See "note" at the beginning of this section.

F. Effectiveness of Oregon Department of Agriculture's Enforcement of Agriculture Programs

Comment: Several comment letters stated they are concerned with ODA's lack of enforcement of its AWQMA rules and other agricultural rules. Other comment letters did not believe there is an enforcement problem. They argued that CZARA does not require states to take specific enforcement action to receive approval. Rather, states only need to have management measures in place, backed by enforcement authority, which they believed Oregon has done.

Commenters that were concerned about enforcement of Oregon's agriculture programs believe Oregon's complaint-driven enforcement approach is not sufficient and that the state is not using its enforcement authorities when voluntary agriculture approaches fail to protect water quality. For example, one commenter, who is an agricultural landowner and a member of an AWQMA local advisory committee, noted that the committee was informed that the AWQMA plan would be complaint driven and compliance was voluntary. The letter questioned the effectiveness of this approach for protecting water quality and designated uses when ODA only issued three fines over the last eleven years.

One comment letter felt ODA works to protect the agriculture industry more than implement the authorities it has to protect water quality. As a result, enforcement is only taken for very egregious cases and even then, it proceeds slowly. Another comment letter also stated how difficult it could be to get ODA to take action on a complaint since only signed complaints actually triggers an investigation. Another comment letter believes that polluted runoff from agriculture is difficult to control because most agricultural activities are exempt from the same Clean Water Act standards. Over all, these commenters believed ODA's lax enforcement has allowed agriculture activities to continue to cause and contribute to water quality and designated use impairments.

One comment letter also was concerned that ODA lacks an implementation plan to ensure that voluntary implementation of the AWQMA plans and other voluntary efforts occur. The letter noted that the implementation plan should include a proactive approach to enforcement (i.e., not rely entirely on a complaint-driven approach) and an enforcement response plan to ensure proper enforcement procedures and corrective actions are triggered when voluntary agricultural efforts are not being implemented or when voluntary approaches are not successfully protecting water quality.

Other comment letters provided an opposing view. They argued that most agricultural landowners comply with existing water quality management rules and meet relevant CZARA requirements. They asserted that Oregon has a process in place to effectively address noncompliance issues and that ODA has the ability to enforce the AWQMA program and ensure compliance with water quality requirements.

They refute claims by others that few ODA enforcement actions over the years demonstrate that ODA does not have the ability and/or will to enforce the AWQMA program and ensure water quality is protected. The commenters noted that when a problem is identified, ODA first works closely with the noncompliant landowner to make necessary land use changes voluntarily before turning to enforcement. Therefore, they explained that most issues are corrected before a formal enforcement

action is needed. Commenters also highlighted the existing review and monitoring processes ODA has enacted to track program "implementation and effectiveness". (See also discussion for "Agriculture-Monitoring and Tracking" comment.)

As noted above, commenters also contended that while CZARA requires the State and its agencies to have enforcement authority for the CZARA management measures. One comment letter stated that CZARA does not require states to take a certain number of enforcement actions or meet a specific enforcement threshold. The commenter believes that not only does ODA have suitable enforcement authority but the state's July 2013 coastal nonpoint program submission, which provided examples of several agriculture enforcement actions, demonstrates that ODA has used its authority to enforce the AWQMA rules, where necessary and appropriate.

Response: NOAA and EPA recognize there are concerns about how well Oregon is enforcing its agriculture programs, including the AWQMA Program. NOAA and EPA continue to encourage the state to improve enforcement and tracking of the AWQMA Program and to ensure the state is using its authority under the AWQMA Program to the fullest to protect water quality and designated uses. However, under CZARA, NOAA and EPA cannot consider how vigorously a state is enforcing a particular program for coastal nonpoint program approval, only whether or not the state has processes in place to implement the CZARA 6217(g) measures. (See response to Comment IV.C, Enforcement, for fuller discussion of this issue).

G. Inadequacy of Oregon Water Resources Department's (OWRD) Water Use Basin Program for Meeting Irrigation Management Measure

Comment: One comment letter noted that the Oregon Water Resources Department's (OWRD's) Water Use Basin Program is inadequate for meeting CZARA requirements for agriculture. The letter suggested that NOAA and EPA are incorrect when finding that OWRD's Water Use Basin Program supports the irrigation measure and reiterated that Oregon's Basin Programs do not ensure that water quality and habitat for sensitive and endangered species will be protected. The letter urges EPA and NOAA to look closely at the deficiencies of the Basin Programs before attributing any water quality or fish habitat protection value to them as a measure in support of Oregon's agricultural conditions. The letter adds that Oregon's rules provide no assurance that water use will be adequately limited to maintain minimum flows and that the Basin Programs fail, in practice, to protect minimum perennial streamflows and instream rights held by OWRD for the protection of aquatic wildlife and water quality. The letter requests that EPA should disapprove Oregon's agricultural measures and acknowledge the lack of protection offered by Oregon's Water Use Basin Programs for preservation of aquatic life and designated uses in the agencies' final determination.

Response: See "note" at the beginning of this section.

H. Agriculture Riparian Buffers

Comment: Various comment letters noted the importance of, and need for, adequate agricultural riparian buffers along both fish and non-fish bearing streams. Commenters state the buffers are important to protect water quality, including cold water temperatures needed for the recovery and health of native salmon. The commenters believe that Oregon currently lacks appropriate riparian management practices for agriculture lands to help meet water quality standards and to protect coho salmon, amphibians, and drinking water. In addition, a comment letter noted that ODA's remote sensing

monitoring of riparian areas has shown little improvements in buffers despite implementation of the AWQMA Program and other agriculture programs.

Several commenter letters provided specific examples of Oregon's poor riparian buffer management. For example, several commenters contend that management measures in Oregon's agricultural plans are not sufficient to provide protection of stream banks, bank stability, and the destruction of riparian areas by livestock. They explain that stream banks are key to protecting water bodies from elevated sediment delivery that affects levels of turbidity and fine sediment in streams and eroding stream banks contribute to temperature increases, reduce large woody debris to streams, which is critical to salmonid recovery, and contribute to nutrient and pesticide delivery from upslope agricultural activities.

Another commenter spoke about their experience serving as an advisory member to the Mid-Coast Basin AWQMA Advisory Committee during its local area planning in 2009. The commenter explained that when specific buffer proposals were presented to the committee, "All of the specific proposals for riparian protection were rejected by the committee, despite their knowledge of specific water quality problems in the basin created or exacerbated by inadequate riparian vegetation, including stream temperature problems and bacterial contamination from livestock."

A few comment letters also discussed how the AWQMA rules do not require active restoration of suitable riparian vegetation. Rather the rules only prohibit agricultural activities from preventing the natural re-establishment of "site capable" riparian vegetation that often results in the establishment of invasive species, like blackberries, along the riparian zone; these invasive species do not provide the same water quality protection and habitat value as native vegetation.

Other comment letters stated Oregon's current riparian management practices are sufficient for meeting CZARA requirements. Commenters assert the AWQMA rule does provide for protection of riparian areas and stated that if a violation occurs, corrective actions are required. For example the commenter provided an example that if livestock grazing inhibit the establishment of riparian vegetation, then the livestock would have to be removed or managed appropriately. One comment letter provided an example of several North Coast Basin AWQMA rule requirements, such agriculture management activities must be conducted in a way that maintains stream bank integrity through 25-year storm events and minimize the degradation of established native vegetation while allowing for the presence of nonnative vegetation.

The commenter refuted others' claims that the "site capable" vegetation required by the rules is not effective at protecting water quality. The commenter asserts that "site capable" vegetation plays an important role in filtering pesticides from runoff before it enters surface waters. Commenters also pointed out that farmers and ranchers implemented many practices to protect and restore riparian vegetation such as installed miles of piping for livestock watering, and planted and fenced many miles of stream banks.

Comment letters stated that there is no requirement in CZARA or Section 6217(g) requiring specific riparian buffers on agricultural lands and that NOAA and EPA provided no concrete evidence in their proposed findings document to demonstrate why Oregon needed to improve its management of agriculture riparian buffers to meet CZARA requirements. One comment letter did not believe the NMFS reports NOAA and EPA cited in the proposed findings document specified that agriculture land use as a

reason better riparian buffers are needed to protect coho salmon.

Response: See "note" at the beginning of this section.

I. Agriculture Pesticide Management

Note: Comments specifically related to pesticides and agriculture are summarized and responded to below. However, NOAA and EPA received general comments on pesticide management as well as specific pesticides related to forestry. Please see Pesticides-General and Forestry-Pesticides for a full discussion of the comments received related to pesticides.

Comment: Comment letters expressed concerns with the amount of pesticide application and the lack of management measures in place to address agricultural pesticide use in Oregon. Commenters stated inappropriate pesticide use and controls impacted both human and environmental health. Commenters concluded that Oregon's management measures for pesticides are not adequate to meet water quality standards or support designated uses and additional management measures to address pesticides are needed. Commenters asserted that Oregon needs to improve upon both its application restrictions, providing greater controls on spraying in coastal watersheds, and to improve its protections for all stream classes.

Commenters provided specific examples to support their belief that agriculture pesticide management was inadequate. For example, members of AWQMA local advisory committees claimed that the committees were advised to not even consider pesticides as a pollutant. Therefore, they questioned if the AWQMA Program is sufficient to meet the CZARA 6217(g) management measure requirements. Another commenter referred to an herbicide monitoring study that found that polluted runoff resulted from herbicide applications on agricultural lands, as well as other sources.

Other comment letters believed that Oregon does not have sufficient programs in place to monitor pesticide use and impacts. They argued that unknown and unmonitored uses, along with unmonitored health and environmental risks associated with pesticides contribute to the inadequacy of Oregon's program. One comment letter recommended that the endpoints and health and environmental impacts for pesticide management measures should be re-evaluated since they believed most risk assessments for pesticides are based on old and incomplete data and endpoint evaluations. In addition, the letter believed that risk assessments should also include testing of inert ingredients found in pesticide products.

One comment letter also stated that NOAA and EPA's rationale for agriculture in the proposed findings document does not make any findings about the adequacy of Oregon's program to protect water quality and designated uses from pesticides applied to agricultural lands.

Not all comment letters believed Oregon's agriculture pesticide management program was inadequate. Other comment letters stated that Oregon does have appropriate management practices and rules in place. One letter pointed out that Oregon law already encompasses all 6217(g) requirements for pesticide management. All landowners are required to follow pesticide label requirements under the Federal Insecticide, Fungicide, and Rodenticide Act ("FIFRA") and follow ODA's pesticide rules. These rules, coupled with the state's Pesticide Stewardship Program, CAFO, and AWQMA Programs allow the State to address any agricultural pesticide issues. In addition, one comment letter mentioned that the

AWQMA Program's site capable vegetation requirement for riparian areas filters pesticides from runoff before they enter waterways. Because applying pesticides costs money, farmers have an economic incentive to use them judiciously and keep pesticides where they are applied.

Response: See "note" at the beginning of this section.

J. Combined Animal Feeding Operations

Comment: A few comment letters expressed concerns with Oregon's track record at regulating livestock practices. They suggested that Oregon does not even have agriculture management measures in place to adequately regulate combined animal feeding operations (CAFOs). One comment letter suggested additional agriculture management measures were needed to improve permitting, monitoring, and relocation of CAFOs.

One comment letter pointed out that enforcement of CAFO and other livestock management measures is problematic in Oregon. Inadequate enforcement contributes to degraded water quality. Commenters referenced many examples of actual water pollution from livestock, including fecal waste from cows floating in waterways. They described instances where complaints against CAFOs have been submitted repeatedly to ODA but they received no response or resolution to their complaints.

Other comment letters explained that Oregon's existing requirements relating to managing CAFOs are adequate to maintain water quality and disagreed that additional management measures are needed. They explained that ODA's rules require landowners to evaluate fertilizer efficiency, assess the layout of their farms and storage facilities, locate potential areas where runoff could contact nutrient carrying substances and relocate or avoid placing storage there.

In addition, they stated that CAFOs are subject to state-wide NPDES permits and are therefore exempt from 6217(g). Moreover, they contended that landowners still go beyond what is required in the 6217(g) CAFO management measures by ensuring there is no discharge to water; runoff is stored and covered; and waste and runoff nutrient levels, temperature, amount of time stored, and time and quantity of land application of manure at agronomic rates are measured and monitored.

Response: NOAA and EPA acknowledge receiving several pictures and personal anecdotes from commenters that show problem situations, e.g., cattle standing in waterways, that could have an adverse impact on coastal water quality. The federal agencies are not in a position via this CZARA action to assess or conclude whether these are CAFO enforcement failures. Nonetheless, the agencies strongly encourage the state to take action and to correct any such infractions through its enforcement program. As noted previously, under CZARA, NOAA and EPA cannot consider how well a state is enforcing a particular program for coastal nonpoint program approval, only whether or not the state has processes in place to implement the CZARA 6217(g) measures. (See response to Comment IV.C, Enforcement, for fuller discussion of this issue).

K. Agriculture Grazing Management

Comment: A few comment letters expressed concerns about the adequacy of Oregon's Coastal Nonpoint Program in addressing the 6217(g) grazing management measure. Several commenters believed the 6217(g) management measures are flawed and do not provide adequate protection of water quality. They stated that, as written, the grazing management measure allows for broad

interpretation that can result in the adoption of ineffective grazing management approaches that do not protect or restore riparian vegetation and do not provide stream shading, as they believed was the case in Oregon. One comment letter did not believe the 6217(g) management measure requirement to provide salt and water for livestock away from riparian zones was effective. In addition, the commenter criticized the 6217(g) measure for not requiring a halt to grazing in riparian areas during the summer.

Other comment letters supported Oregon's grazing practices. They felt the AWQMA Program is consistent with the 6217(g) grazing management measure and protects stream banks and water sources from grazing activities. They point out that AWQMA rules limit the amount of time livestock have access to waterways. In addition, the rules do not allow agricultural activities, including grazing, to inhibit the growth of "site capable" riparian vegetation. If there were a violation of this restriction, livestock would need to be removed or managed more appropriately.

Response: See "note" at the beginning of this section.

L. Need for Additional Management Measures for Agriculture

Comment: Multiple comment letters noted that Oregon needed to implement additional management measures for agriculture to meet water quality standards and to protect designated uses. One letter specifically asserted that the existing agriculture management measures do not protect waterbodies from temperature pollution. The letter stated that temperature pollution is the most pervasive water quality problem in coastal lowland streams and that elevated temperatures can also impact salmonid productivity. The letter concluded that it is very likely agriculture activities are contributing to temperature standard violations because for most TMDLs, the allowable temperature increases for nonpoint source pollutants is zero. The letter stated that none of the AWQMA rules for Oregon coastal watersheds incorporate additional management measures needed to meet the zero load allocations established in the temperature TMDLs.

Commenters suggested specific additional management measures to protect water quality. For example, to address temperature pollution, several comments recommended that minimum riparian buffer widths need to be established. One comment letter stated that published literature suggested that the minimum width should be no less than 100 feet (30 meters) and that greater than 100 foot buffers may be needed in certain areas, such as low gradient meandering channels that are adjacent to designated critical habitat for listed species. Another comment letter believed that specific height and density requirements also needed to be established for riparian vegetated buffers.

Other additional management measures that commenters identified included: adopting better pesticide management; fencing streams and riparian areas to reduce impacts from livestock; improving permitting, monitoring and relocation of CAFOs; and adopting regulatory provisions to promote the establishment of riparian vegetation in critical habitat areas and the reintroduction of beaver in suitable locations. One comment letter expressed concern over a diminishing beaver population because they are being trapped and hunted out. The letter notes that beavers play an important role in maintain natural stream channels, wetlands, and complex floodplains.

Several other comment letters asserted that additional management measures for agriculture are not needed. The commenters noted that EPA and NOAA have not provided specific data or information that would support the need for additional management measures. They also noted that CZARA does not

require states to implement specific practices, such as specific requirements for agricultural riparian buffers or the restoration of lands to pre-agricultural uses.

In addition, they assert that CZARA does not give NOAA and EPA the authority to place specific additional management measure requirements on a state's program. Rather, they state that the CZARA guidance notes that it is the state's responsibility to identify when, where, and what additional management measures are needed. (See discussion under General-Additional Management Measures for response to this specific comment).

Response: See "note" at the beginning of this section.

M. Economic Achievability of Agriculture Management Measures

Comment: A few commenters emphasized that CZARA requires that all management measures must be "economically achievable" (Section 6217(g)(5)). Therefore they asserted that it would be inconsistent with CZARA to require landowners to implement management measures that are not "economically achievable." They stated that Oregon's AWQMA Program is rooted in implementing economically achievable agriculture practices, consistent with CZARA statutory requirements. On a related note, another commenter also stated that the more voluntary-based approaches, backed by enforceable authorities, Oregon employs to support implementation of its 6217(g) agriculture management measures are more cost-effective because they allow the landowner the flexibility to select the right best management practice for his or her specific site conditions.

Response: Commenters are correct that the CZARA management measures need to be economically achievable. Specifically, CZARA defines management measures to be "economically achievable measures for the control of the addition of pollutants from existing and new categories and classes of nonpoint sources of pollution, which reflect the greatest degree of pollutant reduction achievable through the application of the best available nonpoint pollution control practices, technologies, processes, siting criteria, operating methods, or other alternatives" (Section 6217(g)(5)). In developing the CZARA 6217(g) management measures, EPA determined that "all of the management measures in [the] guidance are economically achievable, including, where limited data were available, cost-effective." (See EPA. 1993. *Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters,* pg. 1-13.)

When evaluating a state's coastal nonpoint program, the federal agencies do not consider if one approach is more cost-effective than another, only that the approach the state proposes meets the CZARA 6217(g) management measure requirements.

N. Addressing Agriculture Legacy Issues

Comment: A few comment letters expressed concerns about legacy agriculture issues, such as where riparian vegetation may have regrown on former agricultural land but is comprised largely of invasive species (i.e., blackberry brambles) and does not provide sufficient protection of stream water quality or create adequate habitat. They criticized the AWQMA Program as not doing enough to address legacy issues. They stated that the AWQMA Program does not require active restoration--only removal of current practices that impair restoration. The commenters contended that this creates a gap that must be addressed if Oregon is going to meet its water quality standards. They believed that Oregon needed to adopt additional management measure requirements to address this legacy issue.

Another comment letter stated that ODA has the authority needed to take action against legacy issues, but the commenter did not believe the agency had the political will to do so.

Several other comment letters opposed the statement NOAA and EPA made in the proposed findings that AWQMA planning and enforcement does not address "legacy" issues created by agriculture activities that are no longer occurring. The commenters stated that neither CZARA nor the 6217(g) guidance define legacy issues or require that state coastal nonpoint programs to address legacy issues. The commenters asserted that nothing within CZARA indicated Congress never intended for states to consider "legacy" issues through their coastal nonpoint programs.

The commenters stated that even though there is no CZARA requirement to address legacy agriculture issues, Oregon does have a process in place to identify opportunities to enhance and restore watersheds, including addressing "legacy" agriculture issues. They assert that the state invests money to address these issues through a variety of programs such as the Oregon Plan for Salmon and Watersheds, the Oregon Aquatic Habitat Restoration and Enhancement Guide, the Oregon Watershed Enhancement Board riparian restoration projects, AWQMA plans, and many other federal, public and private partnerships. One comment letter states these programs are successful because of the voluntary efforts of many Oregon agriculture landowners.

Another comment letter contended that NOAA and EPA contradicted themselves in regard to legacy agriculture issues in the proposed findings document. The letter notes the federal agencies determined that legacy effects were not addressed through existing regulatory tools but concluded that agriculture plans are a regulatory mechanism to address past actions that are the primary cause of eroding stream banks.

Response: NOAA and EPA would like to clarify what appears to be some confusion around the statements made in the December 20, 2013, proposed findings document. The statement in the proposed findings document that noted that the AWQMA Program does not address "legacy" issues was not a finding of NOAA and EPA. Rather, the bulleted list on page 14 of the proposed findings document relays concerns the federal agencies have heard others express regarding Oregon's agriculture practices, including the AWQMA Program's ability to address "legacy" issues. The concerns listed were not necessarily the views of NOAA and EPA.

NOAA and EPA disagree with the comment that statements the federal agencies made in the proposed findings document contradict one another. The commenter believed that NOAA and EPA's 2004 informal interim approval of the erosion and sediment control management measure conflicted with the statement that AWQMA planning and enforcement does not address "legacy" issues created by agriculture activities that are no longer occurring. First, as explained in the above paragraph, the statement in the proposed findings document about the adequacy of Oregon's agriculture programs to address "legacy" issues expressed concerns that others had voiced; it did not necessarily reflect the views of the federal agencies. Second, the CZARA 6217(g) guidance notes that management measure for erosion and sediment control is "intended to be applied by states to activities that cause erosion on agricultural land and on land that is converted from other land uses to agricultural lands." The management measure is not designed to address past agriculture actions that are causing erosion on land that is no longer used for agriculture. Therefore, the federal agencies' 2004 informal interim approval of the erosion and sediment control management for agriculture, which is not a definitive

finding or decision, in no way asserts the state has programs in place to address "legacy" issues on former agriculture land.

O. See also "note" at the beginning of this section. Effectiveness of Existing Monitoring and Tracking Programs for Agriculture

Comment: Several comment letters expressed concern with Oregon's existing monitoring and tracking efforts to evaluate the effectiveness of its agriculture programs. The commenters did not believe these efforts were sufficient to understand how well existing management approaches are being implemented, how effective those approaches are at protecting and restoring water quality, and when adaptive approaches are needed. A few comment letters did acknowledge that ODA's new strategy for more targeted water quality monitoring is a step forward, but the letters also noted a more robust monitoring and tracking program is needed for agriculture. One comment letter asserted that a State independent science team found ODA's proposed monitoring plan lacked detail, focus, and an understanding of basic monitoring concepts and practices.

Several comment letters specifically stated that ODA does not effectively track implementation and effectiveness of AWQMA plans. One letter suggested that Oregon include a compliance strategy to ensure that AWQMA plans and rules are adequately implemented to meet TMDL load allocations and water quality standards. The commenter added that there must be a policy and proactive process to assess AWQMA plan and rule implementation and for taking appropriate enforcement action when violations occur.

Another comment letter stated there was a significant gap in the existing science to understand the effectiveness of Oregon's agricultural practices to protect water quality and designated uses. The letter noted that the State cannot move forward with stronger agriculture regulations without first having a good understanding of how its existing programs are falling short and what improvements are needed to ensure water quality standards will be met.

Other comment letters believed the State's existing monitoring and tracking efforts are effective at assessing implementation of agriculture practices. Specifically the commenters noted that biennial reviews of the AWQMA plans, with about 18 reviews done each year, provide a way to track plan implementation. They also highlighted the State's efforts to develop more formalized evaluation processes through the Strategic Implementation Areas and Focus Areas process to target priority areas and issues. The commenters stated the State's new Enterprise Monitoring Initiative, which began in 2012, monitors waterways passing through agriculture lands and can be used to inform the effectiveness of the AWQMA program. In addition, one comment letter asserted that most ambient water quality monitoring in the coastal region reported fair to excellent water quality and sites with poor conditions were not due to agriculture activities.

Response: See "note" at the beginning of this section.

XI. HYDROMODIFICATION

Comment: A couple of comment letters discussed the negative impacts of hydromodification, noting the effects of dams on water quality and habitat and impacts from channel modification. The commenters

declared that Oregon has failed to control polluted runoff from eroding stream banks and shorelines and it does not have programs in place to protect and restore channel conditions from modification.

Response: NOAA and EPA recognize commenters are concerned about the adverse impacts of hydromodifications along waterways in coastal Oregon. However, NOAA and EPA did not propose to find the state has failed to submit a fully approvable coastal nonpoint program based on the approvability of the hydromodification management measures and did not solicit comment on this issue at this time. The public will have an opportunity to comment on the hydromodification management measures of Oregon's Coastal Nonpoint Program at some point in the future before the agencies fully approve Oregon's coastal nonpoint program.

XII. WETLANDS

Comment: One comment letter noted that Oregon does not have programs in place to protect and restore riparian areas needed to maintain cool stream temperatures and habitat or to protect and restore wetlands.

Response: NOAA and EPA recognize commenters are concerned that Oregon may not have programs in place to protect and restore riparian areas and wetlands. However, NOAA and EPA did not propose to find the state has failed to submit a fully approvable coastal nonpoint program based on the approvability of the broad wetlands and riparian area management measures and did not solicit comment on this issue general issue (outside of riparian protection for forestry and agriculture activities) at this time. The public will have an opportunity to comment on the general wetland and riparian management measures of Oregon's Coastal Nonpoint Program at some point in the future before the agencies fully approve Oregon's coastal nonpoint program. (See specific comments about the adequacy of riparian protection in relation to forestry in agriculture activities, and NOAA and EPA's responses to those comments, under the Forestry and Agriculture sections above).

XIII. LIST OF ACRONYMS AND ABBREVIATIONS

Acronym or Abbreviation	Definition
AWQMA	Agricultural water quality management area
AWQMAP	Agricultural water quality management area plan
BiOp	Biological opinion
Board	Board of Forestry
CMER	Cooperative Monitoring Evaluation and Research
Coastal Nonpoint Program	Coastal Nonpoint Pollution Control Program

Acronym or Abbreviation	Definition
CSRI	Coastal Salmon Restoration Initiative
CZARA	Coastal Zone Act Reauthorization Amendments of 1990
DBH	Diameter at breast height
EPA	Environmental Protection Agency
EQC	Environmental Quality Commission
ESA	Endangered Species Act
Federal agencies	National Oceanic and Atmospheric Administration and the U.S. Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FPA	Forest Practices Act
GIS	Geographic information system
GPS	Global Positioning System
ICS	Interagency Coordinating Subgroup
IMST	Independent Multidisciplinary Science Team
kPa	kiloPascal
NCASI	National Council for Air and Stream Improvement
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
OAR	Oregon Administrative Rules
ODA	Oregon Department of Agriculture
ODEQ	Oregon Department of Environmental Quality
ODF	Oregon Department of Forestry
OPSW	Oregon Plan for Salmon and Watersheds
Oregon Plan	Oregon Plan for Salmon and Watersheds

Acronym or Abbreviation	Definition
OSDS	Onsite sewage disposal systems
PARC	Pesticide Analytical and Response Center
PCW	Protection of Cold Water
PSP	Pesticide Stewardship Partnership
RipStream	Riparian and Stream Temperature Effectiveness Monitoring Program
State	State of Oregon
TMDL	Total Maximum Daily Load
U.S.	United States
USGS	U.S. Geological Survey